

## **CHAPTER 2**

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# **ALTERNATIVES**



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## CHAPTER 2

# ALTERNATIVES

### 2.1 Introduction

This chapter presents four alternative approaches to achieving the purposes of this amendment to the 1998 Northeast National Petroleum Reserve – Alaska IAP/EIS. These alternatives present a range of actions in terms of the amount of additional lands in the Planning Area that would be opened to oil and gas leasing, and the types of mitigation measures (prescriptive-based or performance-based) that would be taken to protect surface resources within the Planning Area from the impacts of oil and gas development.

### 2.2 Formulation of the Alternatives

An interdisciplinary team consisting of BLM staff from the Alaska State and Northern Field Office, with additional input from other federal and state agencies, and affected communities on the North Slope of Alaska, assisted in the development of the alternatives for consideration in this Final Amended IAP/EIS. Additional input was obtained from 1) the public through a scoping process; 2) from comments on the Draft Amended IAP/EIS, with meetings held in key communities within and adjacent to the Planning Area, as well as in Anchorage and Fairbanks, and Bethel, Alaska, and in Washington D.C.; and 3) from public comments received during ANILCA 810 hearings held in key communities within and adjacent to the Planning Area, and Bethel, Alaska, concerning the potential impacts of the various alternatives on subsistence resources and activities. A full description of the scoping process is included in the *Public Scoping Summary Report for the Amendment to the Northeast National Petroleum Reserve – Alaska Integrated Activity Plan/Environmental Impact Statement* (ENSR 2004). A discussion of other management proposals considered during preparation of the Final Amended IAP/EIS is in [Section 2.4.2](#), Other Management Recommendations.

As explained in [Section 1.3.1](#) regarding the purpose and need for this amendment, the BLM began a planning process to amend the 1998 Northeast IAP/EIS Record of Decision. Three alternatives were developed for and evaluated in the Draft Amended IAP/EIS.

The ROD from the 1998 Northeast IAP/EIS provides the basis for Alternative A, which is the No Action Alternative. This alternative makes 4 million of the approximately 4.6 million acres within the Planning Area available for oil and gas leasing ([Map 2-1](#)), and utilizes 79 prescriptive-based stipulations to provide protection of environmental, cultural, and subsistence resources.

Alternative B makes approximately 4,387,000 acres (95% of the Planning Area) available for oil and gas leasing (approximately 387,000 more acres than under the No Action Alternative; [Map 2-2](#)), and utilizes performance-based stipulations and required operating procedures (ROPs) patterned after those developed for the Northwest IAP/EIS ROD to provide greater flexibility to the BLM in providing protection for environmental, cultural, and subsistence resources. This modification in mitigation measures, from prescriptive-based stipulations toward adaptive-management concepts and performance-based standards, would assist in ensuring that performance-based mitigations in the form of general and site specific stipulations and ROPs were applied consistently across the Northeast and Northwest National Petroleum Reserve – Alaska. These performance-based mitigations would allow the BLM to implement adaptive management principles, recognizing that knowledge about natural resource systems is sometimes uncertain and changing.

Alternative C makes approximately 4,600,000 acres (100 percent of the Planning Area; approximately 600,000 more acres than under the No Action Alternative) available for oil and gas leasing ([Map 2-3](#)). Alternative C also utilizes the same performance-based stipulations and ROPs as developed for Alternative B.

A fourth alternative, Alternative D, the Agency's final Preferred Alternative, was developed by the BLM based on public comments received on the Draft Amended IAP/EIS and ANILCA 810 subsistence hearings. This alternative makes approximately 4,389,000 acres (95 percent of the Planning Area) available for oil and gas leasing (approximately 389,000 more acres than under the No Action Alternative; [Map 2-4](#)). Under Alternative D, Teshekpuk Lake (approximately 211,000 acres) is deferred from leasing; this deferral would preclude exploratory drilling and pipeline construction, and current leases would not be affected by the deferral. Alternative D also utilizes the same performance-based stipulations and ROPs developed for alternatives B and C. In addition, three new stipulations are proposed for the final Preferred Alternative, and additions, deletions, and edits have been made to the proposed performance-based mitigations designed for alternatives B and C that would apply to the final Preferred Alternative and would increase protection to surface resources throughout the Planning Area. The additional stipulations and changes would prohibit permanent oil and gas facilities (No Surface Occupancy; NSO), on approximately 374,000 acres, although pipelines and publicly-funded community roads would be allowed in this area. Exploration activities would be allowed within this NSO, including seismic acquisition and exploratory drilling. These stipulations would protect calving, post-calving, insect-relief, and migration habitat for caribou and molting habitat for geese. Finally, a new site-specific stipulation would establish a maximum limit of 300 acres of permanent surface disturbance from oil and gas activities within each of seven lease tracts identified north of Teshekpuk Lake. These seven lease tracts range in size from approximately 46,000 acres to 59,000 acres.

As required by 43 CFR 2361.1, each of the four alternatives proposed through this amendment process, using protective stipulations and ROPs, contains measures to mitigate or avoid unnecessary surface disturbance and minimize ecological disturbance throughout the Planning Area to the extent consistent with the purposes of the NPRPA for the exploration of the Planning Area. Also, each alternative presents a different approach to providing maximum protection to surface resources within two designated Special Areas in the Planning Area—the Teshekpuk Lake Special Area and the Colville River Special Area ([Map 1-3](#)). The Teshekpuk Lake Special Area was designated primarily to protect important nesting, staging, and molting habitat for a large number of waterfowl. The area also provides important habitat for caribou and is an important subsistence use area. Section 104(b) of the NPRPA of 1976 [42 USC § 6504 (b)] states that any exploration within the Teshekpuk Lake Area shall be conducted in a manner which will assure maximum protection of significant surface values "...to the extent consistent with the requirements of this Act [NPRPA] for the exploration of the reserve." Public Law 96-514 of December 12, 1980, amended the NPRPA authorizing oil and gas leasing in the Reserve, and as codified in 42 USC 6508 stated "There shall be conducted, notwithstanding any other provision of law and pursuant to such rules and regulations as the Secretary may prescribe, an expeditious program of competitive leasing of oil and gas in the National Petroleum Reserve in Alaska, provided that (1) activities undertaken pursuant to this section shall include or provide for such conditions, restrictions, and prohibitions as the Secretary deems necessary or appropriate to mitigate reasonably foreseeable and significantly adverse effects on the surface resources of the National Petroleum Reserve in Alaska..."

The Colville River Special Area, a third of which is in the Planning Area, was created to protect the Arctic peregrine falcon, which at that time was an endangered species. Provisions in the NPRPA require that any oil and gas exploration or development within a special area "shall be conducted in a manner which will assure the maximum protection of such surface resources to the extent consistent with the requirements of [the] Act for the exploration of the reserve" (42 USC § 6504[b], 6508).

In the No Action Alternative, maximum protection of the Teshekpuk Lake Special Area was provided by making an extensive portion (approximately 600,000 acres) of the area in and near Teshekpuk Lake unavailable for oil and gas leasing. In addition, under this alternative, No Surface Activity restrictions are imposed on approximately 250,000 acres of additional lands. (No Surface Activity; [Map 2-1](#)). The BLM also identified specific stipulations to protect caribou in the Teshekpuk Lake Special Area (see Special Caribou Stipulations Area Stipulations 25, 33, 36, and 49 in [Appendix E](#)).

For the Colville River Special Area under the No Action Alternative, no permanent oil and gas facilities, except pipeline crossings, would generally be allowed within 1 mile of the west bluff (or bank if there is no bluff) along that portion of the Colville River (Stipulation 39). For the Kikiakrovak and Kogosukruk rivers, also within the Colville River Special Area, no permanent oil and gas surface facilities, except essential transportation crossings, would be



allowed within 1 mile of the bluff (or bank if there is no bluff; Stipulation 39). In addition, an area within 2 miles of the bluff on either side of these two rivers would receive special consideration within the consultation framework described in stipulations 61 and 62.

Under Alternative B, the BLM would provide protection of surface values in the Teshekpuk Lake Special Area and the Colville River Special Area. Protection of the Teshekpuk Lake Special Area would be provided by making much (approximately 213,000 acres) of the area northeast of Teshekpuk Lake unavailable for oil and gas leasing.

Under Alternative B, no permanent oil and gas facilities, except essential pipeline and road crossings, would generally be allowed within 1 mile of the west bluff (or bank if there is no bluff) along that portion of the Colville River within that portion of the Planning Area within the Colville River Special Area (Lease Stipulation K-7). For the Kikiakrovak and Kogosukruk rivers, also within the Colville River Special Area, no permanent oil and gas surface facilities, except essential pipeline and road crossings, would be allowed within 1 mile of the bluff (or bank if there is no bluff; Lease Stipulation K-1.d). If necessary to construct permanent facilities within the Colville River Special Area, all reasonable and practicable efforts would be made to locate permanent facilities as far from raptor nests as feasible. Within 15 miles of raptor nests, substantial alteration of high quality raptor foraging habitat would be prohibited unless the lessee can demonstrate on a site-specific bases, that impacts would be minimal or it is determined that there is no feasible or prudent alternative.

Under Alternative C, the protections for the Teshekpuk Lake Special Area and Colville River Special Area are the same as for Alternative B, except that the 213,000 acres unavailable for leasing under Alternative B would be available under Alternative C.

Under Alternative D, the final Preferred Alternative, the protections for the Teshekpuk Lake Special Area and Colville River Special Area are different from alternatives A, B, and C as follows:

- Teshekpuk Lake (approximately 211,000 acres) would be deferred from leasing; this deferral would preclude exploratory drilling, however, current leases would not be affected by the deferral.
- Three additional stipulations (K-9, K-10, and K-11) would provide additional protection in the Teshekpuk Lake Special Area by prohibiting permanent oil and gas facilities, except (where applicable) pipelines and publicly-funded community roads, on approximately 217,000 acres north of Teshekpuk Lake, on 16,000 acres east of Teshekpuk Lake (where pipelines and roads would not be permitted), and on 141,000 acres southeast of Teshekpuk Lake, except pipelines and publicly-funded community roads.
- Exploration activities would be allowed within these NSOs, including seismic acquisition and exploratory drilling.
- These stipulations would protect calving, post-calving, insect-relief, and migration habitat for caribou, as well as molting habitat for geese.
- A new stipulation would establish a maximum limit of 300 acres of permanent surface disturbance from oil and gas activities (no exceptions would be permitted in this area) within each of seven lease tracts identified north of Teshekpuk Lake in the Teshekpuk Lake Special Area and the Goose Molting Area.

## **2.2.1 Areas with Additional Protections**

Each alternative identifies areas with exceptionally important surface resources. These areas are not in themselves administrative or legislative designations, and they carry with them no new regulatory authority. They simply are areas that the BLM has identified, through the planning process, where resource concerns exist that may require consideration of special protections. These spatially defined “protection areas” were referred to as Land Use Emphasis Areas, or LUEAs, in the 1998 Northeast IAP/EIS ROD. In developing the final Preferred Alternative for this amendment, the concept of identifying key resource or “protection areas” remains, but the term LUEA is no longer used. The “protection areas” used for the final Preferred Alternative were also modified to some degree if a more logical organization was identified. For example, in the 1998 Northeast IAP/EIS, the Fish Habitat LUEA

included deepwater lakes and some rivers. Under this amendment's final Preferred Alternative (Alternative D), Deep Water Lakes and Rivers Area are identified separately. The "protection areas" defined for the final Preferred Alternative D and alternatives B and C are the Rivers Area, Deep Water Lakes, Teshekpuk Lake, Goose Molting Area, Teshekpuk Lake Caribou Habitat Area, Coastal Area, Colville Rivers Special Area, and Pik Dunes ([Maps 2-2, 2-3, and 2-4](#)). In addition, three additional "protection areas" were developed exclusively for the final Preferred Alternative D. These are the Caribou Movement Corridor, Southern Caribou Calving Area, and Lease Tracts areas ([Map 2-4](#)). Some portions of each of the areas overlap the Teshekpuk Lake and/or Colville River Special Areas. These area-specific protections, in conjunction with the general Planning Area-wide lease stipulations and ROPs, ensure that the BLM would meet the requirements of the NPRPA to provide maximum protection of surface values in the Teshekpuk Lake Special Area and the Colville River Special Area.

Each action alternative includes protections of surface values specific to each of the areas described below.

### **2.2.1.1 Rivers Area**

The Rivers Area includes areas on the east side of the Ikpiupuk River; both sides and the bed of the Miguakiak River; the west side of the Colville River; both sides of the Tingmiaksiqvik River (also identified as the Ublutuooh River on USGS quadrangle maps; this river would be protected only under Alternative B and the final Preferred Alternative D); from the top of the bluff (or bank if there is no bluff) on both sides of the Kikiakrorak and Kogosukruk rivers and several of the Kogosukruk River tributaries; and both sides of portions of Fish and Judy creeks.

These rivers and creeks provide important spawning, migration, rearing, and over-wintering habitat for both anadromous and resident species of fish. Fishing use includes a substantial subsistence harvest by the residents of Barrow and Nuiqsut and a commercial take at the mouth of the Colville River.

### **2.2.1.2 Deep Water Lakes**

Deep Water Lakes includes numerous waterbodies that provide important spawning, migration, rearing, and over-wintering habitat for both anadromous and resident species of fish. These areas also provide important habitat for molting waterfowl and loafing and foraging habitat for shorebirds. The Deep Water Lakes protection area extends ¼ mile around the perimeter of any deepwater lake within the Planning Area.

### **2.2.1.3 Teshekpuk Lake**

Teshekpuk Lake is a dominant geographic feature of the region. Teshekpuk Lake's range of habitat types includes a 20 to 40-foot deep basin and a complex shoreline that features bays, spits, lagoons, islands, beaches, and extensive shoal areas. The water flow patterns in this extraordinarily flat landscape are complex, and the outlets and inlets can reverse flow, depending on lake levels and stream flows. The Miguakiak River reversed its flow in 1977, causing discharge from breakup flooding on the Ikpiupuk River to flow into Teshekpuk Lake. Teshekpuk Lake provides over-wintering habitat for fish and breeding habitat for waterfowl and shorebirds and is an important resource for subsistence-based cultures in the region.

### **2.2.1.4 Goose Molting Area**

The Goose Molting Area includes suitable habitats in and around (including the lakes north and northeast of) Teshekpuk Lake. This area is the most important molting habitat for black brant, Canada geese, and greater white-fronted geese in the Arctic (see [Section 3.3.6.3](#); Waterfowl). Up to 30 percent of the Pacific flyway population of brant molt in this area (36,817 were counted in 2001). Up to 27,000 Canada geese, 34,930 molting greater white-fronted geese, and 2,670 snow geese were counted in recent years (Mallek 2004). Molting geese, which are highly sensitive to human disturbance, are present in the area from late June to mid- to late August. This area also provides important breeding habitat for several species of shorebirds, including Birds of Conservation Concern.

### **2.2.1.5 Teshekpuk Lake Caribou Habitat Area**

The Teshekpuk Lake Caribou Habitat Area includes suitable habitats in the Teshekpuk Lake region that are essential for all season use by caribou, including calving and rearing, insect-relief, and migration. Caribou of the Teshekpuk Lake Herd calve from late May to mid-June. Studies show that the main areas for calving can shift somewhat within the broad area, with concentrations occurring in several different locations around the lake from year to year (see [Section 3.3.7.1](#); Terrestrial Mammals). For the remainder of the summer, areas of shorelines, barren dunes, and ridges can provide relief from intense insect harassment, which can affect caribou energy budgets and productivity of cows. The land between Teshekpuk Lake and the Beaufort Sea from the Ikpiuk River to the Kogru River are particularly valuable for this purpose.

### **2.2.1.6 Coastal Area**

The Coastal Area includes those areas within  $\frac{3}{4}$  miles of the Beaufort Sea, extending from the western portion of the Planning Area just east of Smith Bay, to the Colville River Delta, including the Kogru River. The Coastal Area is important for caribou movement within coastal insect-relief areas, and for preventing contamination of marine waters, loss of important bird habitat, alteration or disturbance of shoreline marshes, and impacts to subsistence resources activities.

### **2.2.1.7 Colville River Special Area**

The Colville River Special Area extends from the eastern boundary of the Planning Area to roughly 5 to 12 miles west or northwest of the bluffs of the Colville River, from approximately Ocean Point to the southern end of the Planning Area and 2 miles on either side of the Kogosukruk and Kikiakrorak rivers and tributaries of the Kogosukruk River. The lower two-thirds of the Colville River support the highest concentrations of raptors, passerines, and moose on Alaska's North Slope. More than half of the known peregrine, gyrfalcon, and rough-legged hawk territories along this reach are in the Planning Area. Overall, the population of peregrine falcons has increased since its low in 1973, when it was listed as endangered under the ESA. The species has since been de-listed, and population levels should be maintained if the peregrine is to remain off the list. The raptors nest on bluffs adjacent to the river and are sensitive to disturbance.

### **2.2.1.8 Pik Dunes**

The Pik Dunes are located in the extreme southcentral part of the Teshekpuk Lake Special Area. This area was added to the Teshekpuk Lake Special Area in 1999 as a result of the 1998 Northeast IAP/EIS ROD. The dunes complex occupies roughly 15 square miles, with a maximum north/south extent of  $5\frac{1}{2}$  miles, and a maximum east/west extent of 5 miles. The Pik Dunes, which form a basin containing five lakes, are part of a larger dune area that has been stabilized and or vegetated for at least several thousand years. The Pik Dunes are unique, because they are still exposed and active. Beyond their geologic and scenic uniqueness, the dunes provide: 1) insect-relief habitat for caribou, 2) habitat for several uncommon plant species, and 3) data critical to understanding major climatic fluctuations over the last 12,000 years.

### **2.2.1.9 Caribou Movement Corridor Area**

The Caribou Movement Corridor Area extends for approximately 4 miles from the eastern shore of Teshekpuk Lake towards the Kogru Inlet. This area is approximately 16,000 acres and has been identified as important for caribou movement during the calving and insect-relief seasons. The area is a relatively narrow passage between Teshekpuk Lake and the Kogru Inlet that has many smaller lakes, and has been identified as a "bottleneck" to caribou north/south movement.

### **2.2.1.10 Southern Caribou Calving Area**

The Southern Caribou Calving Area is found south/southeast of Teshekpuk Lake and is approximately 141,000 acres. This area provides important caribou calving, post-calving, and insect-relief habitat.

### **2.2.1.11 Lease Tracts Area**

The Lease Tracts Area is found north of Teshekpuk Lake. This area would be delineated into seven large lease tracts that would range in size from approximately 46,000 to 59,000 acres. This area provides important caribou calving, post-calving, insect-relief habitat, and sensitive goose molting habitat.

## **2.3 Description of the Alternatives**

The four alternatives developed for the Amended IAP/EIS differ in two important areas: 1) the amount of land that would be made available for oil and gas leasing, and 2) the types of mitigation (lease stipulations and ROPS) that would be used to protect surface resources ([Table 2-1](#)). The following sections discuss these elements in more detail for each alternative. In addition, two tables ([Tables 2-2](#) and [2-3](#)) found at the end of this chapter are used to compare the mitigations and their effectiveness, for each alternative, and to describe the likely effects of actions taken under each alternative.

### **2.3.1 Alternative A – No Action Alternative**

Alternative A is the No Action Alternative and is comprised of decisions established in the ROD for the 1998 Northeast IAP/EIS. The decisions described in this alternative constitute the existing management practices of the Northeast National Petroleum Reserve – Alaska.

Under this alternative, approximately 87 percent (4 million acres) of the Planning Area’s approximately 4.6 million acres would be available for oil and gas leasing ([Map 2-1](#)). Management practices would emphasize prescriptive-based stipulations on surface activities, consultation with local residents, and coordinated scientific studies to protect wildlife habitat, subsistence use areas, and other resources. The prescriptive-based stipulations developed for this alternative in the 1998 Northeast IAP/EIS ROD are listed in [Appendix E. Appendix F](#) (Standardized Stipulations Applied to Mitigate the Impacts of Non-Oil and Gas Authorizations), lists stipulations that apply to all non-oil and gas related activities conducted for the No Action and action alternatives. [Table 2-2](#), found at the end of this chapter, compares and evaluates the effectiveness of the prescriptive-based stipulations developed for this alternative with the performance-based stipulations and ROPs developed for alternatives B, C, and D.

### **2.3.2 Alternative B**

Alternative B makes available approximately 95 percent (4,387,000 acres) of the Planning Area’s approximately 4.6 million acres for oil and gas leasing ([Map 2-2](#)). Management practices would emphasize performance-based stipulations and ROPs on surface activities, consultation with local residents, and coordinated scientific studies to protect wildlife habitat, subsistence use areas, and other resources. In addition, approximately 213,000 acres would be unavailable for oil and gas leasing, to provide for protection of wildlife and subsistence resources.

Performance-based stipulations and ROPs (patterned after those developed for the northwest portion of the National Petroleum Reserve – Alaska) would be used to mitigate the impacts of energy development and other land uses throughout the Planning Area. These mitigation measures would provide BLM greater flexibility to adapt management decisions to changing and uncertain environmental conditions on the ground. These restrictions are presented in [Section 2.6.3](#) (Alternative B and Alternative C Stipulations and Required Operating Procedures) and pertain to these activities:

**Table 2-1. Alternative Summary Comparison Table.**

| Alternative   | Lands Available for Use   | Mitigation   | Leasing and Occupancy Restrictions   |
|---|---|--|--|
| No Action Alternative (Alternative A; 1998 Northeast IAP/EIS ROD)   | Approximately 4,000,000 acres (87%) available for leasing           | 79 Prescriptive-based stipulations as outlined in 1998 Northeast IAP/EIS ROD   | Areas unavailable for leasing (approximately 600,000 acres [13%] of the Planning Area)<br>Areas under a No Surface Activity Restriction = approximately 250,000 acres southwest, south, and southeast of Teshekpuk Lake  |
| Alternative B   | Approximately 4,387,000 acres (95%) available for leasing           | Performance-based stipulations and ROPs as given in <a href="#">Section 2.6</a>  | Goose molting/caribou habitat use area north of Teshekpuk Lake (approximately 213,000 acres [4.6%] of the Planning Area unavailable for leasing)   |
| Alternative C   | 4,600,000 acres (100%) available for leasing (entire Planning Area) | Performance-based stipulations and ROPs (same as Alternative B)  | All areas available for leasing  |
| Final Preferred Alternative (Alternative D)   | Approximately 4,389,000 acres (95%) available for leasing           | Performance-based stipulations and ROPs, similar to those identified for Alternative B, plus 3 additional site specific stipulations | <ul style="list-style-type: none"> <li>• Areas deferred from leasing - 211,000 acres in Teshekpuk Lake</li> <li>• 217,000 acres north of Teshekpuk Lake (Goose Molting Area restricted to No Surface Occupancy for permanent oil and gas development (no exceptions); allows for winter exploration only*)</li> <li>• 141,119 acres south/southeast of Teshekpuk Lake restricted to No Surface Occupancy for permanent oil and gas development; allows for winter exploration only*</li> <li>• 16,590 acres between Teshekpuk Lake and Kogru River restricted to No Surface Occupancy; allows for winter exploration only**</li> <li>• 7 Lease Tracts north of Teshekpuk Lake; surface disturbance is limited to 300 acres within each lease tract*</li> </ul> |
| *Excludes pipelines and publicly-funded community roads<br>**Includes Pipelines and publicly-funded community roads |   |  |  |

- Waste Prevention Handling, Disposal, Spills, and Public Safety
- Water Use for Permitted Activities
- Winter Overland Moves and Seismic Work
- Oil and Gas Exploratory Drilling
- Facility Design and Construction
- Use of Aircraft for Permitted Activities
- Oilfield Abandonment
- Subsistence Consultation for Permitted Activities
- Orientation Programs Associated with Permitted Activities
- Endangered Species Act Section 7 Consultation Process

Additional seasonal and spatial restrictions are applied to provide protection of specific environmentally sensitive areas. These areas are described in [Section 2.2.1](#) (Areas with Additional Stipulations) and in the stipulations outlined in [Section 2.6.3.2](#) (Stipulations That Apply to Biologically Sensitive Areas). These stipulations would also apply to

the approximately 387,000 acres that are unavailable for leasing under the No Action Alternative, but would be made available under Alternative B. Environmentally sensitive areas and their applicable stipulations are listed below.

- Rivers Area (see Lease Stipulation K-1)
- Deep Water Lakes (see Lease Stipulation K-2)
- Teshekpuk Lake (see Stipulation K-3)
- Goose Molting Area (see Lease Stipulation K-4)
- Teshekpuk Lake Caribou Habitat Area (see Lease Stipulation K-5)
- Coastal Area (see Stipulation K-6)
- Colville River Special Area (see Lease Stipulation K-7)
- Pik Dunes (see Lease Stipulation K-8)

### 2.3.3 Alternative C

Alternative C makes 100 percent of the Planning Area's 4.6 million acres available for oil and gas leasing ([Map 2-3](#)). Alternative C also utilizes the same performance-based stipulations and ROPs developed for the Alternative B to mitigate the impacts of energy development and other land uses on resources in the Planning Area. These mitigations would provide greater flexibility to BLM to adapt management decisions to uncertain or changing environmental conditions.

All lands within the Planning Area would be available for leasing; however, additional seasonal and spatial stipulations would be applied to protect environmentally sensitive areas ([Map 2-3](#)). Performance-based stipulations and ROPs (patterned after those developed for the northwest portion of the National Petroleum Reserve – Alaska) will be used to mitigate the impacts of energy development and other land uses, throughout the Planning Area. These mitigation measures would provide BLM greater flexibility to adapt management decisions to changing and uncertain environmental conditions on the ground. These restrictions are presented in [Section 2.6.3](#) (Alternative B and Alternative C Stipulations and Required Operating Procedures) and pertain to the following activities:

- Waste Prevention Handling, Disposal, Spills, and Public Safety
- Water Use for Permitted Activities
- Winter Overland Moves and Seismic Work
- Oil and Gas Exploratory Drilling
- Facility Design and Construction
- Use of Aircraft for Permitted Activities
- Oilfield Abandonment
- Subsistence Consultation for Permitted Activities
- Orientation Programs Associated with Permitted Activities
- Endangered Species Act Section 7 Consultation Process

Additional seasonal and spatial stipulations and ROPs are applied to provide protection of environmentally sensitive areas. These areas are described in [Section 2.2.1](#) (Areas with Additional Stipulations) and in the stipulations outlined in [Section 2.6.3.2](#) (Stipulations That Apply in Biologically Sensitive Areas). These stipulations would apply to those areas that would be unavailable for leasing under the No Action Alternative and Alternative B, but would be made available under this alternative. Environmentally sensitive areas and their applicable stipulations are as follows.



- Rivers Area (see Lease Stipulation K-1)
- Deep Water Lakes (see Lease Stipulation K-2)
- Teshekpuk Lake (see Stipulation K-3)
- Goose Molting Area (see Lease Stipulation K-4)
- Teshekpuk Lake Caribou Habitat Area (see Lease Stipulation K-5)
- Coastal Area (see Stipulation K-6)
- Colville River Special Area (see Lease Stipulation K-7)
- Pik Dunes (see Lease Stipulation K-8)

### **2.3.4 Alternative D – Preferred Alternative**

Alternative D, the final Preferred Alternative, makes available approximately 95 percent (approximately 4,389,000 acres) of the Planning Area's 4.6 million acres for oil and gas leasing ([Map 2-4](#)). Management practices would emphasize performance-based stipulations and ROPs on surface activities, consultation with local residents, and coordinated scientific studies to protect wildlife habitat, subsistence use areas, and other resources. Under the final Preferred Alternative, Teshekpuk Lake (approximately 211,000 acres) would be deferred from leasing. This deferral would preclude exploratory drilling and pipeline construction. Current leases are not affected by the deferral.

The final Preferred Alternative makes available approximately 389,000 acres that were unavailable in the 1998 ROD. The additional lands made available by the final Preferred Alternative are within the area of highest oil and gas potential in the Northeast Planning Area, and are within the Teshekpuk Lake Special Area (TLSA). However, several major protective measures have been developed to protect important resources and subsistence activities in the TLSA:

- Areas north of Teshekpuk Lake that are important for molting black brant and other sensitive waterfowl would be protected with a No Surface Occupancy (NSO) stipulation (approximately 217,000 acres). Lakes and adjacent lands identified as important habitat for molting geese and other waterfowl would be included in the NSO area. Because many of these lakes are in very close proximity, the buffer areas around the lakes often overlap resulting in the NSO area depicted by [Map 2-4](#). In addition to providing protection to molting geese and other waterfowl, this restriction would also provide protection for caribou calving, and insect-relief habitats. While providing necessary protections to key resources, this stipulation would allow for exploration of the region. Within the NSO area(s), permanent oil and gas facilities would be prohibited, but pipelines and inter-community or other permanent roads constructed with public funds for general transportation purposes would be allowed. Exploration activities would be allowed within the NSO, including seismic acquisition and exploratory drilling during the winter season only. See Lease Stipulation K-4 in [Section 2.6.4](#) (Alternative D Stipulations and Required Operating Procedures).
- The area extending from the eastern shore of Teshekpuk Lake approximately 4 miles eastward towards the Kogru Inlet would be protected with a NSO stipulation (approximately 16,500 acres). This area has been identified as important for caribou movement during the calving and insect-relief seasons. The area is a relatively narrow passage between the Teshekpuk Lake and Kogru Inlet that is inundated with many smaller lakes, and has been identified as a "bottleneck" to caribou north/south movement. Within the NSO area, permanent oil and gas facilities would be prohibited, including pipelines and inter-community public access roads. Exploration activities would be allowed within this NSO including seismic acquisition and exploratory drilling during the winter season only. See Lease Stipulation K-9 in [Section 2.6.4](#) (Alternative D Stipulations and Required Operating Procedures).
- The area south/southeast of Teshekpuk Lake would be protected with a NSO stipulation (approximately 141,000 acres). This area, in addition to areas north of Teshekpuk Lake, has been identified as important to caribou calving, post-calving, and insect relief. Within the NSO area, permanent oil and gas facilities would be prohibited, excluding pipelines and inter-community public access roads. Exploration activities would be

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allowed within this NSO, including seismic acquisition and exploratory drilling during the winter season only. See Lease Stipulation K-10 in [Section 2.6.4](#) (Alternative D Stipulations and Required Operating Procedures).

- The area north of Teshekpuk Lake would be delineated into seven large lease tracts. These tracts would range from 46,000 to 59,000 acres. Each tract would establish a maximum limit of 300 acres of permanent surface disturbance resulting from oil and gas activities. The total allowed surface disturbance in the Lease Tract Area would be approximately 2,100 acres. See Lease Stipulation K-11 in [Section 2.6.4](#) (Alternative D Stipulations and Required Operating Procedures).

Performance-based stipulations and ROPs (patterned after those developed for the northwest portion of the National Petroleum Reserve – Alaska) would be used to mitigate the impacts of energy development and other land uses throughout the Planning Area. These mitigation measures would provide BLM greater flexibility to adapt management decisions to changing and uncertain environmental conditions on the ground. These restrictions are presented in [Section 2.6.4](#) (Final Preferred Alternative [Alternative D] Stipulations and Required Operating Procedures) and pertain to the following activities:

- Waste Prevention Handling, Disposal, Spills, and Public Safety
- Water Use for Permitted Activities
- Winter Overland Moves and Seismic Work
- Oil and Gas Exploratory Drilling
- Facility Design and Construction
- Use of Aircraft for Permitted Activities
- Oilfield Abandonment
- Subsistence Consultation for Permitted Activities
- Orientation Programs Associated with Permitted Activities
- Endangered Species Act Section 7 Consultation Process

Additional seasonal and spatial restrictions are applied to provide protection of specific environmentally sensitive areas. These areas are described in [Section 2.2.1](#) (Areas with Additional Stipulations) and in the stipulations outlined in [Section 2.6.4.2](#) (Stipulations That Apply to Biologically Sensitive Areas). These stipulations would also apply to the approximately 389,000 acres that are unavailable for leasing under the No Action Alternative, but would be made available under the final Preferred Alternative. Environmentally sensitive areas and their applicable stipulations are listed below.

- Rivers Area (see Lease Stipulation K-1)
- Deep Water Lakes (see Lease Stipulation K-2)
- Teshekpuk Lake (see Stipulation K-3)
- Goose Molting Area (see Lease Stipulation K-4)
- Teshekpuk Lake Caribou Habitat Area (see Lease Stipulation K-5)
- Coastal Area (see Stipulation K-6)
- Colville River Special Area (see Lease Stipulation K-7)
- Pik Dunes (see Lease Stipulation K-8)
- Caribou Movement Corridor Area (see Lease Stipulation K-9)



- Southern Caribou Calving Area (see Lease Stipulation K-10)
- Lease Tracts Area (see Lease Stipulation K-11)

## **2.4 Alternatives Considered but Eliminated from Detailed Analysis**

### **2.4.1 Alternatives Considered in the 1998 Northeast IAP/EIS**

Some commenters proposed that various alternatives from the 1998 Northeast IAP/EIS be analyzed in the Amended IAP/EIS. The scope of the proposed amendment is limited, however, to two specific objectives. Specifically, the purpose of the amendment is to consider: (1) leasing lands currently closed to oil and gas leasing in the Planning Area, and (2) developing performance-based measures to provide greater flexibility to the BLM in protecting important surface resources from the impacts of oil and gas activities. Three of the alternatives in the 1998 Northeast IAP/EIS (alternatives A, B, and C, which would allow 0, 53, and 72 percent of the lands to be leased, respectively), would make less land available for oil and gas leasing than is currently open for leasing under the No Action Alternative (which allows 87 percent of the lands to be leased) in the Amended IAP/EIS. As a result, alternatives A, B, and C in the 1998 Northeast IAP/EIS would not serve the purpose of the proposed amendment to consider increasing the amount of lands available for leasing and, thus, are outside the scope of the proposed amendment. For this reason, they were considered, but eliminated, from detailed analysis in this Amended IAP/EIS.

Alternatives D and E in the 1998 Northeast IAP/EIS are within the range of alternatives already considered and analyzed in detail in the proposed amendment. Alternative D (which would allow leasing on 90 percent of lands in the Planning Area), is nearly identical to Alternative A (the No Action Alternative) in the Amended IAP/EIS, as it would make only slightly more lands available for leasing in the Planning Area than is currently allowed under the No Action Alternative and would apply the same prescriptive-based mitigation measures. Alternative E in the 1998 Northeast IAP/EIS, which would open up all lands in the Planning Area to leasing, is identical to Alternative C in the Amended IAP/EIS, except Alternative E would apply prescriptive-based rather than performance-based stipulations. Alternative E, therefore, merely combines different elements of alternatives A and C already considered in the Amended IAP/EIS. As they are not significantly different from the existing alternatives analyzed in the Amended IAP/EIS, alternatives D and E from the 1998 Northeast IAP/EIS were considered, but eliminated, from analysis in the Amended IAP/EIS.

### **2.4.2 Other Management Recommendations**

During scoping, the public suggested that alternatives be developed that opened more, or less, of the Planning Area to oil and gas leasing. Other comments suggested different approaches to resource protection, including providing more, or less, protection than what was afforded under the proposed alternatives. As discussed in [Chapter 1](#) (Introduction), the BLM is amending the 1998 Northeast IAP/EIS to consider leasing lands currently closed to oil and gas leasing, and to develop performance-based measures to protect surface resources from oil and gas development. Alternatives that are evaluated in this amendment present a range of actions in terms of the amount of the Planning Area that would be open to oil and gas leasing, and types of measures (prescriptive-based and performance-based) that would be taken to protect surface resources within the Planning Area from the impacts of oil and gas development.

During the comment period on the Draft Amended IAP/EIS, the USFWS submitted a proposal that would leave approximately 296,000 acres northeast of Teshekpuk Lake unavailable to oil and gas leasing. The full text of the agency's letter can be read on the CD included with this document (see Comment Number 197619; U.S. Fish and Wildlife Service at Anchorage). This is an increase of 83,000 and 85,000 acres that would be made unavailable for leasing as compared to Alternative B (Preferred Alternative in Draft Amended IAP/EIS; 213,000 acres unavailable for leasing; [Map 2-2](#)), and the final Preferred Alternative (Alternative D; 211,000 acres in Teshekpuk Lake unavailable for leasing; [Map 2-4](#)), respectively. The USFWS believes their proposal would provide additional protection for molting brant and other wildlife.

An alternative proposal was also submitted by ConocoPhillips Alaska, Inc. The full text of the company's letter can be read on the CD included with this document (see Comment numbers 196557 and 197611; ConocoPhillips Alaska, Inc.). Their proposal would allow for oil and gas leasing, exploration, and development within portions of the area closed to leasing under Alternative B. ConocoPhillips believes that their proposal would provide adequate protection for caribou and molting geese, while providing additional lands for oil and gas development.

The BLM took these proposals and other public comments into consideration when reviewing the alternatives developed for the Draft Amended IAP/EIS. Based on these comments, the BLM developed a final Preferred Alternative for the Final Amended IAP/EIS. This alternative allows for some oil and gas development in the 213,000-acre no-lease area identified under Alternative B (Map 2-4). However, this alternative also provides protection for geese, caribou, subsistence, and other resources found to the north and east of Teshekpuk Lake, by prohibiting permanent oil and gas facilities (excluding pipelines and roads in some areas) on 374,000 acres (Alternative B protects 213,000 acres), and limiting the amount of development (maximum of 300 acres) that can occur within each of seven lease tracts to the north of the lake (Map 2-4). This alternative also defers leasing of Teshekpuk Lake (211,000 acres). With the development of the final Preferred Alternative, the BLM feels it has developed a range of alternatives that encompasses the range of alternatives submitted by the public and agencies.

The U. S. Fish and Wildlife Service, Alaska Department of Fish and Game, and numerous North Slope community comments on caribou habitat were used to develop 1) the No Surface Occupancy stipulation for the Southern Caribou Calving area, 2) the Caribou Movement Corridor, and 3) the decision to defer Teshekpuk Lake from oil and gas leasing. The ConocoPhillips Alaska, Inc. approach to protecting molting geese north of Teshekpuk Lake was to apply a No Surface Occupancy buffer around those lakes with the highest use by molting geese. BLM included this concept by modifying and expanding- buffers to incorporate not only the lake shore areas but the areas in between closely located lakes as well , which is included in the Final Preferred Alternative D.

### **2.4.3 Designation of New Protected Areas**

Some commenters proposed that the BLM consider new permanently protected special areas in the Planning Area or recommend to Congress that new areas be legislatively protected as wilderness or Wild and Scenic Rivers. A comprehensive review of Wild and Scenic River eligibility was completed in the 1998 Northeast IAP/EIS, and no rivers were recommended for Wild and Scenic River designation by Congress as a result of that study. Moreover, BLM has reviewed and considered all of the information available since the 1998 analysis was completed and has found no changes in factors relevant to Wild and Scenic River designation. The BLM concludes that there is no new information which suggests that the prior conclusions in the 1998 Northeast IAP/EIS and ROD should be reconsidered or modified. As a result, the Wild and Scenic River evaluation undertaken the 1998 Northeast IAP/EIS remains adequate and is incorporated by reference into this document for the purposes of complying with the Wild and Scenic Rivers Act, which requires all land and water use planning for development to consider "potential national wild, scenic and recreational river areas..." 16 U.S.C. § 1276(d).

As discussed above, the scope of the proposed amendment is limited to two specific objectives—leasing lands currently closed to oil and gas leasing in the Planning Area, and developing performance-based measures to provide greater flexibility to the BLM in protecting important surface resources from the impacts of oil and gas activities. Because the designation of new protected areas would require areas currently open to leasing under the No Action Alternative to be closed to leasing, the designation of new protected areas is outside the scope of the proposed amendment and inconsistent with its purposes.

## **2.5 Other Management Actions Common to All Alternatives**

Before considering the various management strategies put forward for consideration in these alternatives, readers should be aware that some management actions will occur under all alternatives. These actions include fulfilling the BLM's responsibility to convey land to individual Alaskan Natives and to Native corporations under the Native Allotment Act and the ANCSA, respectively. In cooperation with other federal, state, and NSB resource management

agencies, the BLM also will conduct studies, such as the inventory and monitoring of resource populations and conditions under all alternatives. These studies will assess the health of biological resources, the location and significance of other resources, and the effectiveness of management practices in protecting these resources. The scope of these studies will reflect the level of impacting actions allowed and the protective measures imposed under the plan adopted through this Amended IAP/EIS.

The BLM consults with the USFWS and NOAA Fisheries Service on any action that could impact threatened and endangered species in the Planning Area. The bowhead whale, spectacled eider, and Steller's eider may occur near areas that could be affected by oil and gas development in the Planning Area. The bowhead whale is listed as an endangered species under the ESA, while the two eider species are listed as threatened. The BLM has informally consulted with NOAA Fisheries Service, who indicated that only negligible effects on bowhead whales would occur under any of the alternatives evaluated in this document.

[Appendix G](#) contains a list of species that the BLM has identified as species of special status in Alaska. Most of the species listed in [Appendix G](#) are not found in the National Petroleum Reserve – Alaska. Only those species likely to be found in or near the Planning Area are discussed in the Amended IAP/EIS. The BLM will manage all permitted activities, pursuant to BLM Manual Section 6840 (*Special Status Species Management*), to ensure that actions requiring authorization or approval by the BLM are consistent with the conservation needs of special status species and do not contribute to the need to “list” any of them, either under the provisions of the ESA of 1973, as amended, or other provisions of this policy.

Current BLM policy does not provide for overland tundra travel during the summer season.

## 2.6 Stipulations and Required Operating Procedures

As discussed in [Chapter 1](#) (Introduction), a set of performance-based stipulations and ROPs were developed to protect natural and cultural resources in the Northwest National Petroleum Reserve – Alaska. A similar set of mitigation measures was developed for this amendment, and if adopted, would result in a similar set of protective measures for both the Northwest and Northeast National Petroleum Reserve – Alaska. These mitigation measures would provide BLM greater flexibility to adapt management decisions to changing and uncertain environmental conditions on the ground. These measures differ from the prescriptive-based stipulations developed for the 1998 Northeast IAP/EIS (and which also apply to the No Action Alternative), in that they:

- Do not include actions that already exist in the form of regulation or law; and
- Provide the BLM and other land users, including industry, greater adaptability in protecting surface resources by emphasizing the intent or objective of the mitigation. This principle is often referred to as “Adaptive Management Concepts.” These principles will help the BLM make decisions effectively by utilizing a rigorous combination of management, research, and monitoring so that credible information is gained and management activities can be modified, over time, based on continuous experience. [Table 2-2](#) provides a comparison and evaluation of effectiveness of the current management utilizing the 79 prescriptive-based stipulations from the 1998 Northeast IAP/EIS ROD and the proposed performance-based mitigation measures for alternatives B and C, and the Final Preferred Alternative D.

During scoping, several respondents expressed concern that the mitigation measures developed for the Northwest IAP/EIS (and for the Final Preferred Alternative D and Alternatives B and C for the amended IAP/EIS) would not be as effective, or provide similar levels of protection, as the stipulations developed for the 1998 Northeast IAP/EIS. These performance-based stipulations and ROPs were developed to allow the BLM and industry greater adaptability to mitigate impacts when more site and project specific information became available. By this, it should not be assumed that this flexibility and reliance on project-specific analysis would result in no, or inadequate, protection to the resource of concern. The BLM cannot abrogate its regulatory responsibility to take such action as deemed necessary to mitigate or avoid unnecessary surface damage and to minimize ecological disturbance throughout the National Petroleum Reserve – Alaska, consistent with the requirements of the NPRPA (43 CFR 2361.1). In the end,

the level of resource protection developed for the Northwest National Petroleum Reserve – Alaska, and the Final Preferred Alternative D and alternatives B and C of this amendment, would be similar to, or even greater than, the level of resource protection provided in the 1998 Northeast IAP/EIS Record of Decision.

Stipulations and ROPs for activities under alternatives B and C are listed in [Section 2.6.3](#) (Alternative B and Alternative C Stipulations and Required Operating Procedures). Stipulations and ROPs for activities under the Final Preferred Alternative (Alternative D) are listed in [Section 2.6.4](#) (Alternative D Stipulations and Required Operating Procedures). For a comparison of the protections provided by these mitigations under the different alternatives, see [Table 2-2](#) at the end of this chapter.

Stipulations and ROPs were developed through the Amended IAP/EIS process and are based on knowledge of the resources in the Planning Area and industry practices; they are consistent with existing policies and laws. In developing these protective measures, the BLM has eliminated the redundancy of requirements that already exist in the form of regulation or law.

The stipulations and ROPs are requirements, procedures, management practices, or design features that the BLM, through the ROD, could adopt as operational requirements. These requirements would be addressed through the permitting process. An oil and gas lease does not in itself authorize any on-the-ground activity. Seismic operations, drilling, ice road construction, pipeline construction, etc., require additional land use authorizations. Any applicant requesting such authorization will have to address the stipulations and ROPs either before submitting the application (e.g., for subsistence consultation, brant surveys) or as part of the application proposal (e.g., for a proposal stating that garbage will not be buried, or that pipelines and roads will be separated by 500 feet or more). Requirements that are met prior to submission of the application, as well as procedures, practices, and design features that are an integral part of a proposal, do not need to be stipulated in a permit or lease. Because mitigating ROPs will be identified in the ROD as operational requirements, and not as general lease stipulations, their applicability goes beyond the oil and gas lease to any permitted activity where the requirement is relevant.

The Authorized Officer (AO) may add additional site-specific restrictions as deemed necessary by further NEPA analysis and as developed through consultation with other federal, state, and NSB regulatory and resource agencies. Laws or regulations may require other federal, state, and NSB permits (e.g., Clean Water Act Section 404) for an oil and gas project to proceed. Specific state permits may be required when the state has primary authority, under federal or state law or regulation, to enforce the provision in question. Specific permits issued by federal agencies other than the BLM could include permit conditions that are more stringent than those presented below.

### 2.6.1 Definitions

The following definitions in the context of this document, apply to general and site specific stipulations (K-Stipulations) and Required Operating Procedures (ROPs):

**Active Floodplain:** The lowland and relatively flat areas adjoining inland and coastal waters, including the flood-prone areas of offshore islands, composing, at a minimum, that area subject to a 1 percent or greater chance of flooding in any given year (also referred to as the 100-year or base floodplain).

**Authorized Officer (AO):** A position of authority for approval of various activities through delegation from the Secretary of the Interior. Currently, the designated AO in the State of Alaska for leasing, surface use, and permitting are 1) State Director, 2) Manager of the Northern Field Office in Fairbanks, and 3) Deputy State Director of the Division of Energy and Solid Minerals.

**Body of Water or Waterbody:** A lake, river, stream, creek, or pond that holds water throughout the summer and supports a minimum of aquatic life.

**Consultation:** Consultation, as it is referenced in the stipulations, does not infer formal consultation as required under other legal mandates such as “Section 7 Consultation” under the ESA. Rather, consultation implies that the BLM or

the Lessee/Permittee will contact other agencies or entities to either inform them of potential actions and/or to seek input on noted topics. This includes informal contacts, and written, electronic, and/or verbal communication.

**General Lease Stipulation:** Mitigation developed through BLM planning process/NEPA process that is specifically attached to any lease issued in the Northeast Planning Area.

**No Surface Occupancy:** No permanent oil and gas facilities would be allowed.

**Permanent Oil and Gas Facilities:** Production facilities, pipelines, roads, airstrips, production pads, docks and other bottom-founded structures, seawater-treatment plants, and other structures associated with an oil and gas operation that occupy land for more than one winter season. Material sites, exploration wellheads, and seasonal facilities such as ice roads and ice pads are excluded, even when the pads are designed for use in successive winters.

**Required Operating Procedure:** Mitigation developed through the BLM planning process/NEPA process that is not attached to the oil and gas lease but is required, implemented and enforced at the operational level for all authorized (not just oil and gas) activities.

*Compliance with Required Operating Procedures:* Required Operating Procedures were developed with various mechanisms in place to ensure compliance. These mechanisms include the following:

- 1) Some ROPs are pre-application requirements; therefore compliance will precede approval of the proposed activity. For example, ROP H-1 (a) requires consultation with affected communities prior to submission of an application for relevant activities within the Northeast Planning Area. If consultation has not taken place, the application will be rejected or will be considered incomplete until such time that the consultation has occurred.
- 2) Other ROPs are required design features, and would have to be incorporated into the applicant's proposal. As an integral part of the proposal and the authorization, the requirement does not need to be stipulated to be enforceable. For example, a minimum pipeline height of 7 feet for above ground pipelines is a required design of any approved above ground pipeline (ROP E-7). Since the authorization (a ROW in this case) authorizes a pipeline with a minimum height of 7 feet, anything less (unless specifically approved through additional NEPA analysis and the permit) is not in compliance and enforcement actions may be taken even if the permit does not specify a minimum of 7 feet.
- 3) Other ROPs will become conditions of approval on post oil and gas lease land use authorizations and they would be enforceable. For example ROP C-1 prohibits heavy equipment used for cross-country moves within ½ mile of occupied grizzly bear dens.

**Site Specific Lease Stipulation (K-Stipulations):** A mitigation measure developed through the BLM planning process/NEPA process attached only to leases issued within spatially defined areas in the Northeast Planning Area (see [Maps 2-2](#), [2-3](#), and [2-4](#)).

## **2.6.2 Stipulation(s) and Required Operating Procedure(s) and the Permitting/Authorization and Exception Processes**

### **2.6.2.1 Permitting/Authorization Process**

The Required Operating Procedures identified in the following sections would not be attached as conditions of an oil and gas lease. The oil and gas lease is a binding agreement between BLM and the lessee that does not authorize subsequent surface disturbing activity. All surface disturbing activities such as exploratory drilling, road/pipeline construction, seismic acquisition, and overland moves require additional authorization(s) issued subsequent to leasing. This authorization or permitting process which includes permits, leases, and rights-of-way, is a multi-step process as follows:



- Pre-application consultation – The BLM meets and consults with the potential applicant and other affected parties prior to submission of any written application(s). At the time of the pre-application consultation, the applicant is informed of the BLM procedures and operating requirements, including any other federal, state, or local permit requirements, so that any inadequacies and deficiencies in the verbal proposal can be addressed with the submittal of the application. Also, at this time, the BLM, the applicant and other affected parties may visit the proposed site to identify unknown issues.
- Review of Written Application for Completeness – Based on an initial review of the written application, additional information may be requested or application may be rejected.
- Evaluation of Application – An Interdisciplinary Team (ID) reviews the proposal to:
  - 1) Determine if the proposal complies with the **Objectives of the Stipulations and Required Operating Procedures**; this may be accomplished by adhering to the recommended requirements/standards or by the use of new techniques/practices that meet the objectives.
  - 2) Based on additional analysis (e.g., NEPA EA or EIS), new mitigations may be identified based on site and project specific information including any new issues identified throughout this process.
  - 3) Identify appropriate levels of monitoring to determine the effectiveness of the mitigations.
- Issue authorization with appropriate terms and conditions of approval identified or attached.

### 2.6.2.2 Exception Process

The permitting process in conjunction with the greater flexibility afforded by the proposed performance-based lease stipulations and ROPs that are focused on resource management objectives, should result in the need for few, if any, exceptions. BLM anticipates however, there will remain a need to consider exceptions and/or modifications on a case-by-case basis. The following guidelines will be used for considering and granting exceptions to the proposed stipulations or ROPs.

In the event that an exception to a stipulation or ROP is requested, and before an exception may be granted, the lessee/permittee shall demonstrate to the satisfaction of the AO that implementation of the stipulation or ROP:

1.
  - a) is technically not feasible, or
  - b) is economically prohibitive, or
  - c) is an environmentally preferable alternative is available, and
2. the alternative proposed by the lessee/permittee fully satisfies the objective(s) of the lease stipulation or ROP.

The lessee/permittee shall notify the AO in a timely manner that an exception is going to be requested. In demonstrating to the AO that the alternative proposal meets the above criteria, the lessee/permittee shall provide sufficient documentation (technical reports, new/revised procedures, results of scientific research, etc.) to allow for a thorough review and evaluation of the proposal.

Before the consideration or granting of an exception to a ROP, consultation requirements must be met. Except in the case of an emergency, the AO shall consult with the appropriate federal, state, and NSB regulatory and resource agencies before an exception may be granted. The AO's power to grant exceptions to a ROP is limited to those subjects, uses, and permits over which the BLM has authority. Exceptions may be granted in emergencies involving human health and safety.

The BLM may also initiate an exception to a ROP when information (technical reports, new/revised procedures, results of scientific research, etc.) becomes available that demonstrates the alternative proposal satisfies the objective of the ROP and meets the management objectives for the area in which the alternative is proposed. Before granting an exception (other than those granted for emergencies), whether proposed by the lessee/permittee or the BLM, the action shall undergo appropriate NEPA review.

Where it is noted that there is “no exception” to a particular stipulation or ROP, the process outlined in this section, would not apply.

## **2.6.3 Alternative A Stipulations and Alternative B and Alternative C Stipulations and Required Operating Procedures**

The stipulations for Alternative A (No Action Alternative) are presented in [Table 2.2](#) and in [Appendix E](#). The stipulations and ROPs for alternatives B and C are presented in [Section 2.6.3.1](#) (General Lease Stipulations and ROPs) and [Section 2.6.3.2](#) (Stipulations that Apply in Biologically Sensitive Areas). These stipulations and ROPs include additional direction for areas where resource conditions require additional mitigation for resource protection.

### **2.6.3.1 General Lease Stipulations and Required Operating Procedures**

#### **A. Waste Prevention, Handling, Disposal, Spills, and Public Safety**

##### *A-1 Required Operating Procedure*

**Objective:** Protect the health and safety of oil field workers and the general public by avoiding the disposal of solid waste and garbage near areas of human activity.

**Requirement/Standard:** Areas of operation shall be left clean of all debris.

##### *A-2 Required Operating Procedure*

**Objective:** Minimize impacts on the environment from non-hazardous waste generation. Encourage continuous environmental improvement. Protect the health and safety of oil field workers and the general public. Avoid human-caused changes in predator populations.

**Requirement/Standard:** Lessees/permittees shall prepare and implement a comprehensive waste management plan for all phases of exploration and development, including seismic activities. The plan shall be submitted to the AO for approval, in consultation with federal, state, and North Slope Borough regulatory and resource agencies, as appropriate (based on agency legal authority and jurisdictional responsibility), as part of a plan of operations or other similar permit application. Management decisions affecting waste generation shall be addressed in the following order of priority: 1) Prevention and reduction, 2) Recycling, 3) Treatment, and 4) Disposal. The plan shall consider and take into account the following requirements:

- a. **Methods to avoid attracting wildlife to food and garbage.** All feasible precautions shall be taken to avoid attracting wildlife to food and garbage. (A list of approved precautions, specific to the type of permitted use, can be obtained from the AO.)
- b. **Disposal of putrescible waste.** Requirements prohibit the burial of garbage. Lessees and permitted users shall have a written procedure to ensure that the handling and disposal of putrescible waste will be accomplished in a manner that prevents the attraction of wildlife. All putrescible waste shall be incinerated, backhauled, or composted in a manner approved by the AO. All solid waste, including incinerator ash, shall be disposed of in an approved waste-disposal facility in accordance with U.S. Environmental Protection Agency (USEPA) and Alaska Department of Environmental Conservation

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(ADEC) regulations and procedures. The burial of human waste is prohibited except as authorized by the AO.

- c. Disposal of pumpable waste products. Except as specifically provided, the BLM requires that all pumpable solid, liquid, and sludge waste be disposed of by injection in accordance with USEPA, ADEC, and the Alaska Oil and Gas Conservation Commission (AOGCC) regulations and procedures. On-pad temporary muds and cuttings storage, as approved by ADEC, will be allowed as necessary to facilitate annular injection and/or backhaul operations.
- d. Disposal of wastewater and domestic wastewater. The BLM prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the National Pollution Discharge Eliminations System (NPDES) or state permit.

### *A-3 Required Operating Procedure*

Objective: Minimize pollution through effective hazardous-materials contingency planning.

Requirement/Standard: For oil and gas-related activities, a Hazardous Materials Emergency Contingency Plan shall be prepared and implemented before transportation, storage, or use of fuel or hazardous substances. The plan shall include a set of procedures to ensure prompt response, notification, and cleanup in the event of a hazardous substance spill or threat of a release. Procedures applicable to fuel and hazardous substances handling (associated with transportation vehicles) may consist of Best Management Practices if approved by the AO. The plan shall include a list of resources available for response (e.g., heavy-equipment operators, spill-cleanup materials or companies), and names and phone numbers of federal, state, and NSB contacts. Other federal and state regulations may apply and require additional planning requirements. All staff shall be instructed regarding these procedures.

### *A-4 Required Operating Procedure*

Objective: Minimize the impact of contaminants on fish, wildlife and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.

Requirement/Standard: Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:

- a. On-site Clean-up Materials. Sufficient oil-spill-cleanup materials (absorbents, containment devices, etc.) shall be stored at all fueling points and vehicle-maintenance areas and shall be carried by field crews on all overland moves, seismic work trains, and similar overland moves by heavy equipment.
- b. Storage Containers. Fuel and other petroleum products and other liquid chemicals shall be stored in proper containers at approved locations. Except during overland moves and seismic operations, fuel, other petroleum products, and other liquid chemicals designated by the AO in excess of 1,320 gallons in storage capacity shall be stored within an impermeable lined and diked area or within approved alternate storage containers such as over packs, capable of containing 110 percent of the stored volume.
- c. Liner Materials. Liner material shall be compatible with the stored product and capable of remaining impermeable during typical weather extremes expected throughout the storage period.
- d. Permanent Fueling Stations. Permanent fueling stations shall be lined or have impermeable protection to prevent fuel migration to the environment from overfills and spills.
- e. Proper Identification of Containers. All fuel containers, including barrels and propane tanks, shall be marked with the responsible party's name, product type, and year filled or purchased.



- f. Notice of Reportable Spills. Notice of any reportable spill (as required by 40 CFR 300.125 and 18 AAC [Alaska Administrative Code] 75.300) shall be given to the AO as soon as possible, but no later than 24 hours after occurrence.
- g. Identification of Oil Pans (“*duck ponds*”). All oil pans shall be marked with the responsible party’s name.

#### *A-5 Required Operating Procedure*

Objective: Minimize the impact of contaminants from refueling operations on fish, wildlife, and the environment.

Requirement/Standard: Refueling of equipment within 500 feet of the active flood plain of any fish-bearing water body and 100 feet from non-fish-bearing water bodies is prohibited. Small caches (up to 210 gallons) for motorboats, float planes, ski planes, and small equipment, e.g. portable generators and water pumps, will be permitted. The AO may allow storage and operations at areas closer than the stated distances if properly designed to account for local hydrologic conditions.

#### *A-6 Required Operating Procedure*

Objective: Minimize the impact on fish, wildlife, and the environment from contaminants associated with the exploratory drilling process.

Requirement/Standard: Surface discharge of reserve-pit fluids is prohibited unless authorized by applicable NPDES, ADEC, and NSB permits (as appropriate) and approved by the AO.

#### *A-7 Required Operating Procedure*

Objective: Minimize the impacts to the environment of disposal of produced fluids recovered during the development phase on fish, wildlife, and the environment.

Requirement/Standard: Procedures for the disposal of produced fluids shall meet the following requirements:

- a. In upland areas, including wetlands, disposal will be by subsurface-disposal techniques. The AO may permit alternate disposal methods if the lessee demonstrates that subsurface disposal is not feasible or prudent and the alternative method will not result in adverse environmental effects.
- b. In marine waters, approval of discharges by the AO will be based on a case-by-case review of environmental factors and consistency with the conditions of an NPDES permit. Discharge of produced fluids will be prohibited at locations where currents and water depths, in combination with other conditions, are not adequate to prevent impacts to known biologically sensitive areas. Alternate disposal methods will require an NPDES permit certified by the state.

#### *A-8 Required Operating Procedure*

Objective: Minimize conflicts resulting from interaction between humans and bears during leasing and associated activities.

Requirement: Oil and gas lessees and their contractors and subcontractors will, as a part of preparation of lease operation planning, prepare and implement bear-interaction plans to minimize conflicts between bears and humans. These plans shall include measures to:

- a. Minimize attraction of bears to the drill sites.
- b. Organize layout of buildings and work areas to minimize human/bear interactions.
- c. Warn personnel of bears near or on drill sites and identify proper procedures to be followed.

- d. Establish procedures, if authorized, to discourage bears from approaching the drill site.
- e. Provide contingencies in the event bears do not leave the site or cannot be discouraged by authorized personnel.
- f. Discuss proper storage and disposal of materials that may be toxic to bears.
- g. Provide a systematic record of bears on the site and in the immediate area.

### **B. Water Use for Permitted Activities**

#### *B-1 Required Operating Procedure*

Objective: Maintain populations of, and adequate habitat for, fish and invertebrates.

Requirement/Standard: Water withdrawal from rivers and streams during winter is prohibited.

#### *B-2 Required Operating Procedure*

Objective: Maintain natural hydrologic regimes in soils surrounding lakes and ponds, and maintain populations of, and adequate habitat for, fish and invertebrates, and waterfowl.

Requirement/Standard: Water withdrawal from lakes may be authorized on a site-specific basis depending on lake size, water volume, and depth, and fish population and species diversification. Water withdrawal requirements specify:

- a. Water withdrawals from any fish-bearing lake 7 feet or deeper shall be limited to 15 percent of the estimated free water volume located beneath the ice.
- b. Water withdrawals from lakes with depths between 5 and 7 feet that contain only ninespine stickleback and/or Alaska blackfish are limited to up to 30 percent of the under-ice volume.
- c. Water withdrawal may be authorized from any lake if the proponent demonstrates that no fish exist in the lake.
- d. A water-monitoring plan may be required to assess draw down and water quality changes before, during, and after pumping any fish-bearing lake or lake of special concern.
- e. The removal of naturally grounded ice may be authorized from lakes and shallow rivers on a site-specific basis depending upon its size, water volume, and depth, and fish population and species diversification.
- f. Removed ice aggregate shall be included in the 15 percent or 30 percent withdrawal limits—whichever is the appropriate case—unless otherwise approved.
- g. Any water intake structures in fish bearing or non-fish bearing waters shall be designed, operated, and maintained to prevent fish entrapment, entrainment, or injury. Note: All water withdrawal equipment must be equipped and must utilize fish screening devices approved by the Alaska Department of Natural Resources (ADNR).
- h. Compaction of snow cover or snow removal from fish-bearing water bodies shall be prohibited except at approved ice road crossings, water pumping stations on lakes, or areas of grounded ice.

### C. Winter Overland Moves and Seismic Work

The following stipulations and ROPs apply to overland moves, seismic work, and any similar cross-country vehicle use of heavy equipment on non-road surfaces during the winter season. These restrictions do not apply to the use of such equipment on ice roads after they are constructed.

#### *C-1 Required Operating Procedure*

Objective: Protect grizzly bear, polar bear, and marine mammal denning and/or birthing locations.

Requirement/Standard:

- a. Cross-country use of heavy equipment and seismic activities is prohibited within ½ mile of occupied grizzly bear dens identified by the ADFG unless alternative mitigation measures are approved by the AO in consultation with the ADFG.
- b. Cross-country use of heavy equipment and seismic activities is prohibited within 1 mile of known or observed polar bear dens or seal birthing lairs. Operators shall consult with the USFWS and/or NOAA Fisheries Service, as appropriate, before initiating activities in coastal habitat between October 30 and April 15.

#### *C-2 Required Operating Procedure*

Objective: Protect stream banks, minimize compaction of soils, and minimize the breakage, abrasion, compaction, or displacement of vegetation.

Requirement/Standard:

- a. Ground operations shall be allowed only when frost and snow cover is at sufficient depths to protect the tundra. Ground operations shall cease when the spring snowmelt begins (approximately May 5 in the foothills area where elevations reach or exceed 500 feet and approximately May 15 in the northern coastal areas). The exact dates will be determined by the AO.
- b. Only low-ground-pressure vehicles shall be used for on-the-ground activities off ice roads or pads. A list of approved vehicles can be obtained from the AO. Limited use of tractors equipped with wide tracks or “shoes” will be allowed to pull trailers, sleighs, or other equipment with approved undercarriage. Note: This provision does not include the use of heavy equipment such as front-end loaders and similar equipment required during ice road construction.
- c. Bulldozing of tundra mat and vegetation, trails, or seismic lines is prohibited; however, on existing trails, seismic lines or camps, clearing of drifted snow is allowed to the extent that the tundra mat is not disturbed.
- d. To reduce the possibility of ruts, vehicles shall avoid using the same trails for multiple trips unless necessitated by serious safety or superseding environmental concern. This provision does not apply to hardened snow trails for use by low-ground-pressure vehicles such as Rolligons.
- e. The location of winter ice roads shall be designed and located to minimize compaction of soils and the breakage, abrasion, compaction, or displacement of vegetation. Offsets may be required to avoid using the same route or track in the subsequent year.

#### *C-3 Required Operating Procedure*

Objective: Maintain natural spring runoff patterns, avoid flooding, prevent streambed sedimentation, protect water quality and protect stream banks.

## ALTERNATIVES

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Requirement/Standard: Crossing of waterway courses shall be made using a low-angle approach. Snow and ice bridges shall be removed, breached, or slotted before spring breakup. Ramps and bridges shall be substantially free of soil and debris.

### *C-4 Required Operating Procedure*

Objective: Avoid additional freeze-down of deep-water pools harboring over-wintering fish and invertebrates used by fish.

Requirement/Standard: Travel up and down streambeds is prohibited unless it can be demonstrated that there will be no additional impacts from such travel to over-wintering fish or the invertebrates they rely on. Rivers and streams shall be crossed at shallow riffles from point bar to point bar whenever possible.

## **D. Oil and Gas Exploratory Drilling**

### *D-1 Lease Stipulation*

Objectives: Protect fish-bearing rivers, streams, and lakes from blowouts and minimize alteration of riparian habitat.

Requirement/Standard: Exploratory drilling is prohibited in rivers and streams, as determined by the active floodplain, and fish-bearing lakes, except where the lessee can demonstrate on a site-specific basis that impacts would be minimal, or it is determined that there is no feasible or prudent alternative.

### *D-2 Lease Stipulation*

Objective: Minimize surface impacts from exploratory drilling.

Requirement/Standard: Exploratory drilling shall be limited to temporary facilities such as ice pads, ice roads, ice airstrips, and temporary platforms unless lessee demonstrates that construction of permanent facilities such as gravel airstrips, storage pads, and connecting roads is environmentally preferable, or necessary to carry out exploration more economically.

## **E. Facility Design and Construction**

### *E-1 Required Operating Procedure*

Objective: Protect subsistence use and access to traditional subsistence hunting and fishing areas and minimize the impact of oil and gas activities on air, land, water, fish and wildlife resources.

Requirement/Standard: All roads must be designed, constructed, maintained, and operated to create minimal environmental impacts and to protect subsistence use and access to traditional subsistence hunting and fishing areas. Subject to approval by the AO, the construction, operation, and maintenance of oil field roads is the responsibility of the lessee. Note: This provision does not apply to intercommunity or other permanent roads constructed with public funds for general transportation purposes. This preserves the opportunity to plan, design and construct public transportation systems to meet the economic, transportation, and public health and safety needs of the State of Alaska and/or communities within the National Petroleum Reserve – Alaska.

### *E-2 Lease Stipulation*

Objective: Protect fish-bearing water bodies, water quality, and aquatic habitats.

Requirement/Standard: The design and location of permanent oil and gas facilities within 500 feet of fish-bearing or 100 feet of non-fish-bearing waterbodies will only be approved on a case by case basis if the lessee can demonstrate that impacts to fish, water quality, and aquatic and riparian habitats are minimal. Note: Also refer to Area-Specific Stipulations and ROPs for Rivers Area (Lease Stipulation K-1) and Deep Water Lakes (Lease Stipulation K-2).

*E-3 Lease Stipulation*

Objective: Maintain free passage of marine and anadromous fish and protect subsistence use and access to traditional subsistence hunting and fishing.

Requirement/Standard: Causeways and docks are prohibited in river mouths or deltas. Artificial gravel islands and bottom-founded structures are prohibited in river mouths or active stream channels on river deltas. Causeways, docks, artificial islands, and bottom-founded structures shall be designed to ensure free passage of marine and anadromous fish and to prevent significant changes to nearshore oceanographic circulation patterns and water quality characteristics. A monitoring program may be required to address the objectives of water quality and free passage of fish.

*E-4 Required Operating Procedure*

Objective: Minimize the potential for pipeline leaks, the resulting environmental damage and industrial accidents.

Requirement/Standard: All pipelines shall be designed, constructed, and operated under an AO-approved Quality Assurance/Quality Control plan that is specific to the product transported.

*E-5 Required Operating Procedure*

Objective: Minimize impacts of the development footprint.

Requirement/Standard: Facilities shall be designed and located to minimize the development footprint to the maximum extent practicable considering environmental, economic, and social impacts. Note: Where aircraft traffic is a concern, consideration shall be given to balancing gravel pad size and available supply storage capacity with potential reductions in the use of aircraft to support oil and gas operations.

*E-6 Required Operating Procedure*

Objective: Reduce the potential for ice-jam flooding, impacts to wetlands and floodplains, erosion, alteration of natural drainage patterns, and restriction of fish passage.

Requirement/Standard: Stream and marsh crossings shall be designed and constructed to ensure free passage of fish, maintain natural drainage, and minimize adverse effects to natural stream flow. Note: Bridges, rather than culverts, are the preferred method for crossing rivers. When necessary, culverts can be constructed on smaller streams, if they are large enough to avoid restricting fish passage or adversely affecting natural stream flow.

*E-7 Required Operating Procedure*

Objective: Minimize disruption of caribou movement and subsistence use.

Requirement/Standard: Pipelines and roads shall be designed to allow the free movement of caribou and the safe, unimpeded passage of the public while participating in traditional subsistence activities. Listed below are the accepted design practices:

- a. Above ground pipelines shall be elevated a minimum of 7 feet as measured from the ground to the bottom of the pipeline at vertical support members.
- b. In areas where facilities or terrain may funnel caribou movement, ramps over pipelines, buried pipelines, or pipelines buried under roads may be required by the AO after consultation with federal, state, and NSB regulatory and resource agencies (as appropriate, based on agency legal authority and jurisdictional responsibility).
- c. A minimum distance of 500 feet between pipelines and roads should be maintained when feasible. Separating roads from pipelines may not be feasible within narrow land corridors between lakes and where pipelines and roads converge on a drill pad.

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### *E-8 Required Operating Procedure*

Objective: Minimize the impact of mineral materials mining activities on air, land, water, fish, and wildlife resources.

Requirement/Standard: Gravel mine site design and reclamation will be in accordance with a plan approved by the AO. The plan shall consider:

- a. Locations outside the active flood plain.
- b. Design and construction of gravel mine sites within active flood plains to serve as water reservoirs for future use.
- c. Potential use of the site for enhancing fish and wildlife habitat.

### *E-9 Required Operating Procedure*

Objective: Avoidance of human-caused increases in populations of predators of ground nesting birds.

Requirement/Standard: Lessee shall utilize best available technology to prevent facilities from providing nesting, denning, or shelter sites for ravens, raptors, and foxes. The lessee shall provide the AO with an annual report on the use of oil and gas facilities by ravens, raptors and foxes as nesting, denning, and shelter sites.

### *E-10 Required Operating Procedure*

Objective: Prevention of migrating waterfowl, including species listed under the Endangered Species Act, from striking oil and gas and related facilities during low light conditions.

Requirement/Standard: Except for safety lighting, illumination of higher structures shall be designed to direct artificial exterior lighting inward and downward, rather than upward and outward. All drilling structures, production facilities, and other structures that exceed 20 feet in height shall be illuminated as outlined above.

### *E-11 Required Operating Procedure*

Objective: Minimize the take of species listed under the Endangered Species Act and minimize the disturbance of other species of interest from direct or indirect interaction with oil and gas facilities.

Requirement/Standard: In accordance with the guidance below, before the approval of facility construction, aerial surveys of breeding pairs of the following species shall be conducted within any area proposed for development.

#### Special Conditions in Spectacled and/or Steller's Eiders Habitats:

- a. Surveys shall be conducted by the lessee for at least 3 years before authorization of construction, if such construction is within the USFWS North Slope eider survey area and at least 1 year outside that area. Results of aerial surveys and habitat mapping may require additional ground nest surveys. Spectacled and/or Steller's eider surveys shall be conducted following accepted BLM-protocol during the second week of June.
- b. If spectacled and/or Steller's eiders are determined to be present within the proposed development area, the applicant shall consult with the USFWS and BLM in the design and placement of roads and facilities in order to minimize impacts to nesting and brood-rearing eiders and their preferred habitats. Such consultation shall address timing restrictions and other temporary mitigating measures, construction of permanent facilities, placement of fill, alteration of eider habitat, aircraft operations, and introduction of high noise levels.
- c. To reduce the possibility of spectacled and/or Steller's eiders striking above ground utility lines (power and communication), such lines shall either be buried in access roads, or suspended on vertical support members, to the extent practical. Support wires associated with communication towers, radio antennas,

and other similar facilities, shall be clearly marked along their entire length to improve visibility for low flying birds. Such markings shall be jointly developed through consultation with the USFWS. Overhead power and/or communication lines for oil and gas activities will be limited to the following circumstances.

Special Conditions in Yellow-billed Loon Habitats:

- a. Aerial surveys shall be conducted by the lessee for at least 3 years before authorization of construction of facilities proposed for development which are within 1 mile of a lake 25 acres or larger in size. These surveys along shorelines of large lakes shall be conducted following accepted BLM protocol during nesting in late June and during brood rearing in late August.
- b. Should yellow-billed loons be present, the design and location of facilities must be such that disturbance is minimized. Accepted mitigation is a 1-mile buffer around all recorded nest sites and a minimum 1,625-foot (500-meter) buffer around the remainder of the lake shoreline. Development may be prohibited within buffers or activities curtailed while birds are present.

*E-12 Required Operating Procedure*

Objective: Use ecological mapping as a tool to assess wildlife habitat before development of permanent facilities, to conserve important habitat types during development.

Requirement/Standard: An ecological land classification map of the development area shall be developed before approval of facility construction. The map will integrate geomorphology, surface form, and vegetation at a scale, level of resolution, and level of positional accuracy adequate for detailed analysis of development alternatives. The map shall be prepared in time to plan one season of ground-based wildlife surveys, if deemed necessary by the AO, before approval of the exact facility location and facility construction.

*E-13 Required Operating Procedure*

Objective: Protect cultural and paleontological resources.

Requirement/Standard: Lessees shall conduct a cultural and paleontological resources survey prior to any ground-disturbing activity. Upon finding any potential cultural or paleontological resource, the lessee or their designated representative shall notify the AO and suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the AO.

## **F. Use of Aircraft for Permitted Activities**

*F-1 Required Operating Procedure*

Objective: Minimize the effects of low-flying aircraft on wildlife, traditional subsistence activities, and local communities.

Requirement/Standard: The lessee shall ensure that aircraft used for permitted activities maintain altitudes according to the following guidelines:

- a. Aircraft shall maintain an altitude of at least 1,500 feet above ground level (AGL) when within ½ mile of cliffs identified as raptor nesting sites from April 15 through August 15 and within ½ mile of known gyrfalcon nest sites from March 15 to August 15, unless doing so would endanger human life or violate safe flying practices. Permittees shall obtain information from the BLM necessary to plan flight routes when routes may go near falcon nests.
- b. Aircraft shall maintain an altitude of at least 1,000 feet AGL (except for takeoffs and landings) over caribou winter ranges from October 1 through May 1, unless doing so would endanger human life or violate safe flying practices. Caribou wintering areas will be defined annually by the AO.

- c. The number of takeoffs and landings to support oil and gas operations with necessary materials and supplies should be limited to the maximum extent possible. During the design of proposed oil and gas facilities, larger landing strips and storage areas should be considered so as to allow larger aircraft to be employed, resulting in fewer flights to the facility.
- d. Use of aircraft, especially rotary wing aircraft, near known subsistence camps and cabins or during sensitive subsistence hunting periods (spring goose hunting and fall caribou and moose hunting) should be kept to a minimum.
- e. Aircraft used for permitted activities shall maintain an altitude of at least 2,000 feet AGL (except for takeoffs and landings) over the Teshekpuk Lake Caribou Habitat Area ([Map 2-2](#)) from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices. Aircraft use (including fixed wing and helicopter) by oil and gas lessees in the Goose Molting Area ([Map 2-2](#)) should be minimized from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices.

### **G. Oilfield Abandonment**

#### *G-1 Lease Stipulation*

Objective: Ensure the final disposition of the land meets the current and future needs of the public.

Requirement/Standard: Upon abandonment or expiration of the lease, all oil and gas-related facilities shall be removed and sites rehabilitated to as near the original condition as practicable, subject to the review of the AO. The AO may determine that it is in the best interest of the public to retain some or all facilities.

### **H. Subsistence Consultation for Permitted Activities**

“Consultation” may take place by in-person meetings, teleconference, videoconference, exchange of written documents, electronic mail, or other means appropriate to the circumstances. Consultation does not include public meetings that are primarily for the purpose of information distribution, unless it is explained at the beginning of the meeting that there is an open dialogue, and that comments, concerns, or other information are being actively solicited.

#### *H-1 Required Operating Procedure*

Objective: Provide opportunities for participation in planning and decision making to prevent unreasonable conflicts between subsistence uses and oil and gas and related activities.

Requirement/Standard: Lessee/permittee shall consult directly with affected communities using the following guidelines:

- a. Before submitting an application to the BLM, the applicant shall consult with directly affected subsistence communities, the NSB, and the National Petroleum Reserve – Alaska Subsistence Advisory Panel to discuss the siting, timing, and methods of proposed operations. Through this consultation, the applicant shall make every reasonable effort, including such mechanisms as conflict avoidance agreements and mitigating measures, to ensure that proposed activities will not result in unreasonable interference with subsistence activities.
- b. The applicant shall submit documentation of consultation efforts as part of its operations plan. Applicants should submit the proposed plan of operations to provide an adequate time for review and comment by the National Petroleum Reserve – Alaska Subsistence Advisory Panel and to allow time for formal Government-to-Government consultation with Native Tribal governments. The applicant shall submit documentation of its consultation efforts and a written plan that shows how its activities, in combination with other activities in the area, will be scheduled and located to prevent unreasonable conflicts with subsistence activities. Operations plans must include a discussion of the potential effects



of the proposed operation, and the proposed operation in combination with other existing or reasonably foreseeable operations.

- c. A subsistence plan addressing the following items must be submitted:
1. A detailed description of the activity(ies) to take place (including the use of aircraft).
  2. A description of how the lessee/permittee will minimize and/or deal with any potential impacts identified by the AO during the consultation process.
  3. A detailed description of the monitoring effort to take place, including process, procedures, personnel involved, and points of contact both at the work site and in the local community.
  4. Communication elements to provide information on how the applicant will keep potentially affected individuals and communities up-to-date on the progress of the activities and locations of possible, short-term conflicts (if any) with subsistence activities. Communication methods could include holding community meetings, open house meetings, workshops, newsletters, radio and television announcements, etc.
  5. Procedures necessary to facilitate access by subsistence users to conduct their activities.

In the event that no agreement is reached between the parties, the AO shall consult with the directly involved parties and determine which activities will occur, including the timeframes. During development, monitoring plans must be established for new permanent facilities, including pipelines, to assess an appropriate range of potential effects on resources and subsistence as determined on a case-by-case basis given the nature and location of the facilities. The scope, intensity, and duration of such plans will be established in consultation with the AO and Subsistence Advisory Panel.

#### *H-2 Required Operating Procedures*

Objective: Prevent unreasonable conflicts between subsistence activities and geophysical (seismic) exploration.

Requirement/Standard: In addition to the consultation process described above for permitted activities, before applying for permits to conduct geophysical (seismic) exploration, the applicant shall consult with local communities and residents.

Because of the large land area covered by typical geophysical operations and the potential to impact a large number of subsistence users during the exploration season, the permittee/operator will notify in writing all potentially affected long-term cabin and camp users.

The official recognized list of cabin and campsite users is the NSB's 2001 inventory of cabins and campsites.

For the purpose of this standard, a potentially affected cabin/campsite is defined as any camp or campsite within the boundary of the area subject to proposed geophysical exploration and/or within 1,200 feet of actual or planned travel routes used to supply the seismic operations while it is in operation.

A copy of the notification letter and a list of potentially affected users shall also be provided to the office of the appropriate Native Tribal government.

Based on that consultation, the AO may prohibit seismic work up to 1,200 feet of any known, long-term, cabin or campsite. Generally, the AO will allow wintertime seismic work to be conducted within 300 feet of a long-term cabin or campsite that is not in use.

### **I. Orientation Programs Associated with Permitted Activities**

#### *I-1 Required Operating Procedure*

Objective: Minimize cultural and resource conflicts.

Requirement/Standard: All personnel involved in oil and gas and related activities shall be provided information concerning applicable stipulations, ROPs, standards, and specific types of environmental, social, traditional, and cultural concerns that relate to the region. The lessee/permittee shall ensure that all personnel involved in permitted activities shall attend an orientation program at least once a year. The proposed orientation program shall be submitted to the AO for review and approval and should:

- a. Provide sufficient detail to notify personnel of applicable stipulations and ROPs as well as inform individuals working on the project of specific types of environmental, social, traditional, and cultural concerns that relate to the region.
- b. Address the importance of not disturbing archaeological and biological resources and habitats, including endangered species, fisheries, bird colonies, and marine mammals, and provide guidance on how to avoid disturbance.
- c. Include guidance on the preparation, production, and distribution of information cards on endangered and/or threatened species.
- d. Be designed to increase sensitivity and understanding of personnel to community values, customs, and lifestyles in areas in which personnel will be operating.
- e. Include information concerning avoidance of conflicts with subsistence, commercial fishing activities, and pertinent mitigation.
- f. Include information for aircraft personnel concerning subsistence activities and areas/seasons that are particularly sensitive to disturbance by low-flying aircraft. Of special concern is aircraft use near traditional subsistence cabins and campsites, flights during spring goose hunting and fall caribou and moose hunting seasons, and flights near North Slope communities.
- g. Provide that individual training is transferable from one facility to another except for elements of the training specific to a particular site.
- h. Include on-site records of all personnel who attend the program for so long as the site is active, though not to exceed the 5 most recent years of operations. This record shall include the name and dates(s) of attendance of each attendee.
- i. Include a module discussing bear interaction plans to minimize conflicts between bears and humans.

### **J. Endangered Species Act - Section 7 Consultation Process**

The lease areas may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or to have some other special status. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activities that will contribute to the need to list such a species or their habitat. The BLM may require modifications to or disapprove a proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 USC § 1531 et seq., including completion of any required procedure for conference or consultation.

### 2.6.3.2 Stipulations That Apply in Biologically Sensitive Areas

In addition to the stipulations and ROPs developed to protect surface resources throughout the Planning Area, the BLM has identified eight additional stipulations in this section that would specifically apply to biologically sensitive areas. Two of these stipulations (Rivers Area [Lease Stipulation K-1] and Deep Water Lakes [K-2]) would apply to biologically sensitive rivers and lakes throughout the Planning Area.

The other six stipulations were developed to ensure that the BLM would comply with the provisions of the NPRPA that require any oil and gas exploration or development within a special area to “be conducted in a manner which will assure the maximum protection of such surface resources to the extent consistent with the requirements of [the] Act for the exploration of the reserve” (42 USC § 6504[b], 6508). In addition, oil and gas activities must include or provide for “conditions, restrictions, and prohibitions as the Secretary [of the Interior] deems necessary or appropriate to mitigate reasonably foreseeable and significantly adverse effects on the surface resources of the National Petroleum Reserve – Alaska (42 USC § 6508[1]). Stipulations K-3 through K-8 would ensure that the BLM fulfills these statutory mandates in this amendment by providing special protections in the Teshekpuk Lake Special Area and Colville River Special Area. Specifically, Stipulation K-3 would ensure that exploration and development activities do not conflict with traditional subsistence users, historic travel routes, or fish and wildlife resources. Lease Stipulation K-4 would minimize disturbance to molting geese and loss of goose molting, eider, and other waterfowl habitat on or near Teshekpuk Lake from oil and gas exploration and development activities. Lease Stipulation K-5 would provide similar types of protection to caribou and their habitats near the lake. Under Stipulation K-6, coastal areas within the Teshekpuk Lake Special Area would be afforded special protection to minimize alteration of caribou movement within caribou coastal insect-relief areas and to protect other coastal and marine resources. Lease Stipulation K-7 would prohibit permanent oil and gas facilities, except for essential pipeline and road crossings, near the Colville, Kikiakrovak, and Kogosukruk rivers within the Colville River Special Area to protect river natural features and raptor habitat. Lease Stipulation K-8 would prohibit most surface structures in the Pik Dunes to protect caribou insect-relief habitat and the geologic and scenic uniqueness of the dunes.

*K-1 Lease Stipulation – Rivers Area* (identified in [Section 2.2.1.1](#); Rivers Area)

**Objective:** Minimize the disruption of natural flow patterns and changes to water quality; the disruption of natural functions resulting from the loss or change to vegetative and physical characteristics of floodplain and riparian areas; the loss of spawning, rearing or over-wintering habitat for fish; the loss of cultural and paleontological resources; the loss of raptor habitat; impacts to subsistence cabin and campsites; the disruption of subsistence activities; and impacts to scenic and other resource values.

**Requirement/Standard:** Permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines, are prohibited in the streambed and adjacent to the rivers listed below at the distances identified. With the exception of the Ikpiuk River, these setbacks are measured from the bank of the river as determined by the hydrology at the time of application. The standard setback is ½ mile (from the bank’s highest high water mark) and increased to ¾ mile (from the bank’s highest high water mark) where subsistence cabin and campsites are numerous. Along the Colville River and a portion of the Ikpiuk a 1-mile (from the bank’s highest high water mark) setback is required to protect important raptor habitat. On a case-by case basis, and in consultation with federal, state, and NSB regulatory and resource agencies (as appropriate, based on agency legal authority and jurisdictional responsibility), essential pipeline and road crossings to the main channel will be permitted (unless noted otherwise) through setback areas. The above setbacks may not be practical within river deltas. In these situations, permanent facilities shall be designed to withstand a 200-year flood event.

- a. Colville River: a 1-mile setback from the northern bluff (or bank if there is no bluff) of the Colville River extending the length of that portion of the river located within the Planning Area. Note: The Planning Area excludes conveyed Native lands along the lower reaches of the Colville River. Development of road crossings intended to support oil and gas activities shall be consolidated with other similar projects and uses to the maximum extent possible. Note: This provision does not apply to intercommunity or other permanent roads constructed with public funds for general transportation purposes. This preserves the opportunity to plan, design, and construct public transportation systems to

meet the economic, transportation, and public health and safety needs of the State of Alaska and/or communities within the National Petroleum Reserve – Alaska.

- b. Ikpikpuk River: a  $\frac{3}{4}$ -mile setback from each side of the centerline ( $1\frac{1}{2}$  miles total) of the Ikpikpuk River extending from the mouth south to Section 19, Township 7 North, Range 11 West, U.M. (Umiat Meridian). From Section 19, Township 7 North, Range 11 West, U.M., to Section 4, Township 3 North, Range 12 West, U.M., a 1-mile setback is required. Beginning at Section 4, Township 3 North, Range 12 West, U.M., a  $\frac{1}{2}$ -mile setback from the centerline (1 mile total) will be required to the confluence of the Kigalik River and Maybe Creek. Note: The setback distances only apply to the east bank where the Ikpikpuk River is the Planning Area boundary.
- c. Miguakiak River: a  $\frac{1}{2}$  mile (from the bank's highest high water mark) setback from the Miguakiak River.
- d. Kikiakrorak and Kogosukruk Rivers: Note: The following discussion refers only to portions of the Kikiakrorak River downstream from Township 2 North, Range 4 West, U.M. and the Kogosukruk River (including the four tributaries off the southern bank) downstream from Township 2 North, Range 3 West, U.M. No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within 1 mile of the top of the bluff (or bank if there is no bluff) on either side of the rivers and several of the Kogosukruk River tributaries.
- e. Fish Creek: No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within 3 miles (from the bank's highest high water mark) of the creek downstream from the eastern edge of Section 31, Township 11 North, Range 1 East, U.M. or within  $\frac{1}{2}$  mile (from the bank's highest high water mark) of the creek farther upstream.
- f. Judy Creek (in the Planning Area): No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within  $\frac{1}{2}$  mile (from the bank's highest high water mark) of these waterbodies.
- g. Tingmiaksiqvik River (identified as the Ublutuoch River on USGS quadrangle maps): No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within  $\frac{1}{2}$  mile (from the bank's highest high water mark) of this river from the eastern edge of Section 22, Township 8 North, Range 1 East U.M. (the western boundary of the Colville River Special Area) downstream to the confluence with Fish Creek. (does not apply to Alternative C).

### *K-2 Lease Stipulation - Deep Water Lakes* (identified in [Section 2.2.1.2](#); Deep Water Lakes)

Objective: Minimize the disruption of natural flow patterns and changes to water quality; the disruption of natural functions resulting from the loss or change to vegetative and physical characteristics of deep water lakes; the loss of spawning, rearing or over wintering habitat for fish; the loss of cultural and paleontological resources; impacts to subsistence cabin and campsites; and the disruption of subsistence activities.

Requirement/Standard: Permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines, are prohibited on the lake or lakebed and within  $\frac{1}{4}$  mile of the ordinary high water mark of any deep lake as determined to be in lake zone III (i.e., depth greater than 13 feet [4 meters]; Mellor 1985). On a case-by case basis, and in consultation with federal, state and NSB regulatory and resource agencies (as appropriate based on agency legal authority and jurisdictional responsibility), essential pipeline, road crossings, and other permanent facilities may be permitted through or in these areas where the lessee can demonstrate on a site-specific basis that impacts would be minimal or if it is determined that there is no feasible or prudent alternative.

*K-3 Stipulation - Teshekpuk Lake* (identified in [Section 2.2.1.3](#); Teshekpuk Lake)

Teshekpuk Lake contains sensitive biological resources and/or subsistence concerns. The standard(s) for exploration and development activities are set high with the burden of proof resting with the lessee to demonstrate to the AO that granting an approval for exploration and/or development is warranted.

**Objective:** Protect fish and wildlife habitat, preserve air and water quality, and minimize impacts to traditional subsistence activities and historic travel routes on Teshekpuk Lake.

**Requirement/Standard (Exploration):** Requests for approval of any activities must be submitted in advance and must be accompanied by evidence and documentation that demonstrates to the satisfaction of the AO that the actions or activities meet all of the following criteria:

- a. Exploration activities will not unreasonably conflict with traditional subsistence uses or significantly impact seasonally concentrated fish and wildlife resources.
- b. There is adequate spill response capability to effectively respond during periods of broken ice and/or open water or, the availability of alternative methods to prevent well blowouts during periods when adequate response capability cannot be demonstrated. Such alternative methods may include improvements in blowout prevention technology, equipment, and/or changes in operational procedures, and “top-setting” of hydrocarbon-bearing zones.
- c. Reasonable efforts to avoid or minimize impacts related to oil spill response activities, including vessel, aircraft, and pedestrian traffic will be made to minimize additional impacts or further compounding of “direct spill”-related impacts on area resources and subsistence uses.
- d. The location of exploration and related activities shall be sited so as to not pose a hazard to navigation by the public using high-use traditional subsistence-related travel routes on Teshekpuk Lake, recognizing that marine and near-shore travel routes change over time, subject to shifting environmental conditions.

**Requirement/Standard (Development):** With the exception of linear features such as pipelines and causeways, permanent oil and gas platforms or production equipment would not be permitted on or under the water within  $\frac{3}{4}$  mile of the shoreline, and on land  $\frac{1}{4}$  mile landward of the shoreline of Teshekpuk Lake. Activities will only be permitted if they can meet all the following criteria:

- a. Design and construction of facilities shall minimize impacts to traditional subsistence uses, travel corridors, and seasonally concentrated fish and wildlife resources.
- b. Daily operational activities, including use of support vehicles, watercraft, and aircraft traffic, alone or in combination with other past, present, and reasonably foreseeable activities, shall be conducted to minimize impacts to traditional subsistence uses, travel corridors, and seasonally concentrated fish and wildlife resources.
- c. The location of oil and gas facilities, including artificial islands, platforms, associated pipelines, ice or other roads, bridges or causeways, shall be sited and constructed so as to not pose a hazard to navigation by the public using traditional high-use subsistence-related travel routes into and through Teshekpuk Lake.
- d. Demonstrated year-round oil spill response capability, including the capability of adequate response during periods of broken ice or open water, or the availability of alternative methods to prevent well blowouts during periods when adequate response capability cannot be demonstrated. Such alternative methods may include seasonal drilling restrictions, improvements in blowout prevention technology, equipment and/or changes in operational procedures, and “top-setting” of hydrocarbon-bearing zones.

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- e. Reasonable efforts will be made to avoid or minimize impacts related to oil spill response activities, including vessel, aircraft, and pedestrian traffic that add to impacts or further compound “direct spill” related impacts on area resources and subsistence uses.

*K-4 Lease Stipulation - Goose Molting Area* (identified in [Section 2.2.1.4](#); Goose Molting Area)

**Objective:** Minimize disturbance to molting geese and loss of goose molting habitat in and around lakes in the Goose Molting Area.

**Requirement/Standard:** In goose molting habitats, the following standards will be followed for permitted activities:

- a. Water extraction from any lake used by molting geese shall not alter hydrological conditions that could adversely affect identified goose-feeding habitat along lakeshore margins. Considerations will be given to seasonal use by operators (generally in winter) and geese (generally in summer), as well as recharge to lakes from the spring snowmelt.
- b. From May 20 through August 20 drilling other than from current production pads is prohibited. The intent of this rule is to restrict exploration drilling during the period when geese are present. There are no seasonal restrictions on development or exploration drilling for fields in operation.
- c. Oil and gas exploration and development activities will avoid alteration (e.g., damage or disturbance of soils, vegetation, or surface hydrology) of critical goose-feeding habitat types along lakeshore margins (grass/sedge/moss), as identified by the AO in consultation with the USFWS.
- d. Permanent oil and gas facilities (including gravel roads, pads, and airstrips but excluding pipelines) and material sites will be sited to meet the stated objective. With the exception of linear features such as pipelines and causeways, permanent oil and gas platforms or production equipment would not be permitted on or under the water within  $\frac{3}{4}$  mile of the shoreline, and on land  $\frac{1}{4}$  mile landward of the shoreline of goose molting lakes. Goose Molting Area lakes shall be identified by the AO in consultation with appropriate federal, state, and NSB regulatory and resource agencies.
- e. Oil and gas facility layout located within  $1\frac{1}{2}$  miles of a Goose Molting Area lake from May 20 through August 20 shall incorporate features (e.g., temporary fences, siting/orientation) that screen/shield human activity from view of any Goose Molting Area lake, as identified by the AO in consultation with appropriate federal, state, and NSB regulatory and resource agencies.
- f. Major construction activities using heavy equipment (e.g., sand/gravel extraction and transport, pipeline and pad construction, but not drilling from existing production pads) shall be suspended within  $1\frac{1}{2}$  mile of the Goose Molting Area lakes from May 20 through August 20, unless approved by the AO in consultation with the appropriate federal, state, and NSB regulatory and resource agencies.
- g. Strategies to minimize ground traffic will be implemented from May 20 through August 20. These strategies may include limiting trips, use of convoys, different vehicle types, etc. to the extent practicable.
- h. Nonessential helicopter overflights by oil and gas lessees and all other users shall be reviewed and may be suspended in and around Goose Molting Area lakes from May 20 through August 20.
- i. Within the Goose Molting Area, use of fixed-wing aircraft by authorized users shall be restricted from May 20 to August 20. Restrictions may include 1) limited to two round-trip flights/week, and 2) restricted to flight corridors will be established by the BLM after discussions with appropriate federal, state, and NSB regulatory and resource agencies. Note: This site-specific stipulation is not intended to restrict flights necessary to survey wildlife to gain information necessary to meet the stated objective of

this stipulation. However, flights necessary to gain this information would be restricted to the minimum necessary to collect such data.

*K-5 Lease Stipulation - Teshekpuk Lake Caribou Habitat Area* (identified in [Section 2.2.1.5](#); Teshekpuk Lake Caribou Habitat Area)

**Objective:** Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect-relief, and migration.

**Requirement/Standard:** In the Teshekpuk Lake Caribou Habitat Area the following standards will be applied to permitted activities:

- a. Before authorization of construction of permanent facilities, the lessee shall design and implement a study of caribou movement unless an acceptable study(s) has been completed within the last 10 years. The study shall include a minimum of 3 years of current data on caribou movements and the study design shall be approved by the AO and should provide information necessary to determine facility (including pipeline) design and location. Lessees may submit individual study proposals or they may combine with other lessees in the area to do a single, joint study for the entire Teshekpuk Lake Caribou Habitat Area. Study data may be gathered concurrently with other activities.
- b. Exploratory drilling will be allowed only from current production pads or platforms sited within a lake body from May 20 through August 20 in the Teshekpuk Lake Caribou Habitat Area, in compliance with setback requirements set forth in other stipulations.
- c. Within the Teshekpuk Lake Caribou Habitat Area, lessees shall orient linear corridors when laying out oil field developments to the extent practicable, to address migration and corralling effects and to avoid loops of road and/or pipeline that connect facilities.
- d. Ramps over pipelines, buried pipelines, or pipelines buried under the road may be required by the AO, after consultation with appropriate federal, state, and NSB regulatory and resource agencies, in the Teshekpuk Lake Caribou Habitat Area where pipelines potentially impede caribou movement.
- e. The following ground-traffic restrictions shall apply to permanent oil and gas-related roads in the areas and time periods indicated:
  1. Within the Teshekpuk Lake Caribou Habitat Area, from May 20 through August 20, traffic speed shall not exceed 15 miles per hour when caribou are within ½ mile on the road. Additional strategies may include limiting trips, using convoys, using different vehicle types, etc., to the extent practicable.
  2. The lessee or a contractor shall observe caribou movement from May 20 through August 20. Based on these observations, traffic will be stopped temporarily to allow a crossing by 10 or more caribou. Sections of road will be evacuated when migrations of large numbers of caribou appears to imminent.
  3. Major equipment, materials, and supplies to be used at oil and gas work sites in the Teshekpuk Lake Caribou Habitat Area shall be stockpiled prior to or after the period of May 20 through August 20 to minimize road traffic during that period.
  4. Use of aircraft larger than a Twin Otter by authorized users of the Planning Area, including oil and gas lessees, from May 20 through August 20 within the Teshekpuk Lake Caribou Habitat Area, shall be for emergency purposes only.



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5. Fixed-wing aircraft takeoffs and landings by authorized users of the Planning Area shall be limited to an average of one round-trip flight per day from May 20 through June 20, at aircraft facilities within the Teshekpuk Lake Caribou Habitat Areas.
6. Aircraft shall maintain a minimum height of 1,000 feet AGL (except for takeoffs and landings) over caribou winter ranges from October 1 through May 1, and 2,000 feet AGL over the Teshekpuk Lake Caribou Habitat Area from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices.

### *K-6 Stipulation - Coastal Area* (identified in [Section 2.2.1.6](#); Coastal Area)

**Objective:** Minimize hindrance or alteration of caribou movement within caribou coastal insect-relief areas; to prevent contamination of marine waters; loss of important bird habitat; alteration or disturbance of shoreline marshes; and impacts to subsistence resources activities.

**Requirement/Standard:** In the Coastal Area, permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines established to support exploration and development activities shall be located at least  $\frac{3}{4}$  mile inland from the coastline to the extent practicable. Where, as a result of technological limitations, economics, logistics, or other factors, a facility must be located within  $\frac{3}{4}$  mile inland of the coastline, the practicality of locating the facility at previously occupied sites such as Camp Lonely, various Husky/USGS drill sites, and Distant Early Warning (DEW)-Line sites, shall be considered. Use of existing sites within  $\frac{3}{4}$  mile of the coastline shall also be acceptable where it is demonstrated that use of such sites will reduce impacts to shorelines or otherwise be environmentally preferable. All lessees/permittees involved in activities in the immediate area must coordinate use of these new or existing sites with all other prospective users. Before conducting open water activities, the lessee shall consult with the Alaska Eskimo Whaling Commission, the Nuiqsut Whaling Association, and the NSB to minimize impacts to the fall and spring subsistence whaling activities of the communities of the North Slope.

### *K-7 Lease Stipulation - Colville River Special Area* (identified in [Section 2.2.1.7](#); Colville River Special Area)

**Objective:** Prevent or minimize loss of raptor foraging habitat (also see Lease Stipulation K-1; Rivers Area).

**Requirement/Standard for Permanent Facilities:** If necessary to construct permanent facilities within the Colville Special Area, all reasonable and practicable efforts shall be made to locate permanent facilities as far from raptor nests as feasible. Within 15 miles of raptor nest sites, significant alteration of high quality foraging habitat shall be prohibited unless the lessee can demonstrate on a site-specific basis that impacts would be minimal or it is determined that there is no feasible or prudent alternative. Of particular concern are ponds, lakes, wetlands, and riparian habitats. Note: On a case-by case basis, and in consultation with appropriate federal and state regulatory and resource agencies, essential pipeline and road crossings will be permitted through these areas where no other feasible or prudent options are available.

**Requirement/Standard for Activities:** Restriction applies to overland moves, seismic work, and any similar use of heavy equipment (other than actual excavations as part of construction) on tundra surfaces during the winter season:

Motorized ground-vehicle use shall be minimized within the Colville Raptor, Passerine, and Moose Area from April 15 through August 5, with the exception that use will be minimized in the vicinity of gyrfalcon nests beginning March 15. Such use will remain  $\frac{1}{2}$  mile away from known raptor nesting sites, unless authorized by the AO.

### *K-8 Lease Stipulation- Pik Dunes* (identified in [Section 2.2.1.8](#); Pik Dunes)

**Objective:** Retain unique qualities of the Pik Dunes, including geologic and scenic uniqueness, insect-relief habitat for caribou, and habitat for several uncommon plant species.

**Requirement/Standard:** Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited within the Pik Dunes.



## 2.6.4 Final Preferred Alternative (Alternative D) Stipulations and Required Operating Procedures

The stipulations and ROPs for the Final Preferred Alternative (Alternative D) are presented in [Section 2.6.4.1](#) (General Lease Stipulations and ROPs) and [Section 2.6.4.2](#) (Stipulations that Apply in Biologically Sensitive Areas). These stipulations and ROPs include additional direction for areas where resource conditions require additional mitigation for resource protection.

### 2.6.4.1 General Lease Stipulations and Required Operating Procedures

#### A. Waste Prevention, Handling, Disposal, Spills, and Public Safety

##### *A-1 Required Operating Procedure*

**Objective:** Protect the health and safety of oil field workers and the general public by avoiding the disposal of solid waste and garbage near areas of human activity.

**Requirement/Standard:** Areas of operation shall be left clean of all debris.

##### *A-2 Required Operating Procedure*

**Objective:** Minimize impacts on the environment from non-hazardous waste generation. Encourage continuous environmental improvement. Protect the health and safety of oil field workers and the general public. Avoid human-caused changes in predator populations.

**Requirement/Standard:** Lessees/permittees shall prepare and implement a comprehensive waste management plan for all phases of exploration and development, including seismic activities. The plan shall be submitted to the AO for approval, in consultation with federal, state, and North Slope Borough regulatory and resource agencies, as appropriate (based on agency legal authority and jurisdictional responsibility), as part of a plan of operations or other similar permit application. Management decisions affecting waste generation shall be addressed in the following order of priority: 1) Prevention and reduction, 2) Recycling, 3) Treatment, and 4) Disposal. The plan shall consider and take into account the following requirements:

- a. **Methods to avoid attracting wildlife to food and garbage.** All feasible precautions shall be taken to avoid attracting wildlife to food and garbage. (A list of approved precautions, specific to the type of permitted use, can be obtained from the AO.)
- b. **Disposal of putrescible waste.** Requirements prohibit the burial of garbage. Lessees and permitted users shall have a written procedure to ensure that the handling and disposal of putrescible waste will be accomplished in a manner that prevents the attraction of wildlife. All putrescible waste shall be incinerated, backhauled, or composted in a manner approved by the AO. All solid waste, including incinerator ash, shall be disposed of in an approved waste-disposal facility in accordance with U.S. Environmental Protection Agency (USEPA) and Alaska Department of Environmental Conservation (ADEC) regulations and procedures. The burial of human waste is prohibited except as authorized by the AO.
- c. **Disposal of pumpable waste products.** Except as specifically provided, the BLM requires that all pumpable solid, liquid, and sludge waste be disposed of by injection in accordance with USEPA, ADEC, and the Alaska Oil and Gas Conservation Commission (AOGCC) regulations and procedures. On-pad temporary muds and cuttings storage, as approved by ADEC, will be allowed as necessary to facilitate annular injection and/or backhaul operations.

- d. Disposal of wastewater and domestic wastewater. The BLM prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the National Pollution Discharge Eliminations System (NPDES) or state permit.

### *A-3 Required Operating Procedure*

Objective: Minimize pollution through effective hazardous-materials contingency planning.

Requirement/Standard: For oil and gas-related activities, a Hazardous Materials Emergency Contingency Plan shall be prepared and implemented before transportation, storage, or use of fuel or hazardous substances. The plan shall include a set of procedures to ensure prompt response, notification, and cleanup in the event of a hazardous substance spill or threat of a release. Procedures applicable to fuel and hazardous substances handling (associated with transportation vehicles) may consist of Best Management Practices if approved by the AO. The plan shall include a list of resources available for response (e.g., heavy-equipment operators, spill-cleanup materials or companies), and names and phone numbers of federal, state, and NSB contacts. Other federal and state regulations may apply and require additional planning requirements. All staff shall be instructed regarding these procedures.

### *A-4 Required Operating Procedure*

Objective: Minimize the impact of contaminants on fish, wildlife and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.

Requirement/Standard: Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:

- a. On-site Clean-up Materials. Sufficient oil-spill-cleanup materials (absorbents, containment devices, etc.) shall be stored at all fueling points and vehicle-maintenance areas and shall be carried by field crews on all overland moves, seismic work trains, and similar overland moves by heavy equipment.
- b. Storage Containers. Fuel and other petroleum products and other liquid chemicals shall be stored in proper containers at approved locations. Except during overland moves and seismic operations, fuel, other petroleum products, and other liquid chemicals designated by the AO in excess of 1,320 gallons in storage capacity shall be stored within an impermeable lined and diked area or within approved alternate storage containers such as over packs, capable of containing 110 percent of the stored volume. Storage of liquid chemicals and other hazardous materials within 500 feet of the active floodplain of any fish bearing waterbody and 100 feet from non-fish bearing waterbodies is prohibited. Also see ROP A-5.
- c. Liner Materials. Liner material shall be compatible with the stored product and capable of remaining impermeable during typical weather extremes expected throughout the storage period.
- d. Permanent Fueling Stations. Permanent fueling stations shall be lined or have impermeable protection to prevent fuel migration to the environment from overfills and spills.
- e. Proper Identification of Containers. All fuel containers, including barrels and propane tanks, shall be marked with the responsible party's name, product type, and year filled or purchased.
- f. Notice of Reportable Spills. Notice of any reportable spill (as required by 40 CFR 300.125 and 18 AAC [Alaska Administrative Code] 75.300) shall be given to the AO as soon as possible, but no later than 24 hours after occurrence.
- g. Identification of Oil Pans (“duck ponds”). All oil pans shall be marked with the responsible party’s name.

*A-5 Required Operating Procedure*

Objective: Minimize the impact of contaminants from refueling operations on fish, wildlife, and the environment.

Requirement/Standard: Refueling of equipment within 500 feet of the active flood plain of any fish-bearing water body and 100 feet from non-fish-bearing water bodies is prohibited. Small caches (up to 210 gallons) for motorboats, float planes, ski planes, and small equipment, e.g. portable generators and water pumps, will be permitted. The AO may allow storage and operations at areas closer than the stated distances if properly designed to account for local hydrologic conditions.

*A-6 Required Operating Procedure*

Objective: Minimize the impact on fish, wildlife, and the environment from contaminants associated with the exploratory drilling process.

Requirement/Standard: Surface discharge of reserve-pit fluids is prohibited unless authorized by applicable NPDES, ADEC, and NSB permits (as appropriate) and approved by the AO.

*A-7 Required Operating Procedure*

Objective: Minimize the impacts to the environment of disposal of produced fluids recovered during the development phase on fish, wildlife, and the environment.

Requirement/Standard: Procedures for the disposal of produced fluids shall meet the following requirements:

- a. In upland areas, including wetlands, disposal will be by subsurface-disposal techniques. The AO may permit alternate disposal methods if the lessee demonstrates that subsurface disposal is not feasible or prudent and the alternative method will not result in adverse environmental effects.
- b. In marine waters, approval of discharges by the AO will be based on a case-by-case review of environmental factors and consistency with the conditions of an NPDES permit. Discharge of produced fluids will be prohibited at locations where currents and water depths, in combination with other conditions, are not adequate to prevent impacts to known biologically sensitive areas. Alternate disposal methods will require an NPDES permit certified by the state.

*A-8 Required Operating Procedure*

Objective: Minimize conflicts resulting from interaction between humans and bears during leasing and associated activities.

Requirement: Oil and gas lessees and their contractors and subcontractors will, as a part of preparation of lease operation planning, prepare and implement bear-interaction plans to minimize conflicts between bears and humans. These plans shall include measures to:

- a. Minimize attraction of bears to the drill sites.
- b. Organize layout of buildings and work areas to minimize human/bear interactions.
- c. Warn personnel of bears near or on drill sites and identify proper procedures to be followed.
- d. Establish procedures, if authorized, to discourage bears from approaching the drill site.
- e. Provide contingencies in the event bears do not leave the site or cannot be discouraged by authorized personnel.
- f. Discuss proper storage and disposal of materials that may be toxic to bears.

- g. Provide a systematic record of bears on the site and in the immediate area.
- h. Encourage lessee/permittee to participate and comply with the Incidental Take Program under the Marine Mammal Protection Act.

### **B. Water Use for Permitted Activities**

#### *B-1 Required Operating Procedure*

Objective: Maintain populations of, and adequate habitat for, fish and invertebrates.

Requirement/Standard: Water withdrawal from rivers and streams during winter is prohibited.

#### *B-2 Required Operating Procedure*

Objective: Maintain natural hydrologic regimes in soils surrounding lakes and ponds, and maintain populations of, and adequate habitat for, fish and invertebrates, and waterfowl.

Requirement/Standard: Water withdrawal from lakes may be authorized on a site-specific basis depending on lake size, water volume, and depth, and fish population and species diversification. Water withdrawal requirements specify:

- a. Lakes that are  $\geq 7$  ft with sensitive fish (any fish except ninespine stickleback or Alaska blackfish), water available for withdrawal is limited to 15% of calculated volume deeper than 7 ft; lakes that are between 5 and 7 ft with sensitive fish, water available for withdrawal would be calculated on a case by case basis.
- b. Lakes that are  $\geq 5$  ft with only non-sensitive fish (i.e., ninespine stickleback or Alaska blackfish), water is available for withdrawal is limited to 30% of calculated volume deeper than 5 ft.
- c. Any lake with no fish present, regardless of depth, water available for withdrawal is up to 100% as specified within the permit.
- d. A water-monitoring plan may be required to assess draw down and water quality changes before, during, and after pumping any fish-bearing lake or lake of special concern.
- e. The removal of naturally grounded ice may be authorized from lakes and shallow rivers on a site-specific basis depending upon its size, water volume, and depth, and fish population and species diversification.
- f. Removed ice aggregate shall be included in the 15 percent or 30 percent withdrawal limits—whichever is the appropriate case—unless otherwise approved.
- g. Any water intake structures in fish bearing or non-fish bearing waters shall be designed, operated, and maintained to prevent fish entrapment, entrainment, or injury. Note: All water withdrawal equipment must be equipped and must utilize fish screening devices approved by the Alaska Department of Natural Resources (ADNR).
- h. Compaction of snow cover or snow removal from fish-bearing water bodies shall be prohibited except at approved ice road crossings, water pumping stations on lakes, or areas of grounded ice.

### C. Winter Overland Moves and Seismic Work

The following stipulations and ROPs apply to overland moves, seismic work, and any similar cross-country vehicle use of heavy equipment on non-road surfaces during the winter season. These restrictions do not apply to the use of such equipment on ice roads after they are constructed.

#### *C-1 Required Operating Procedure*

Objective: Protect grizzly bear, polar bear, and marine mammal denning and/or birthing locations.

Requirement/Standard:

- a. Cross-country use of heavy equipment and seismic activities is prohibited within ½ mile of occupied grizzly bear dens identified by the ADFG unless alternative mitigation measures are approved by the AO in consultation with the ADFG.
- b. Cross-country use of heavy equipment and seismic activities is prohibited within 1 mile of known or observed polar bear dens or seal birthing lairs. Operators shall consult with the USFWS and/or NOAA Fisheries Service, as appropriate, before initiating activities in coastal habitat between October 30 and April 15.

#### *C-2 Required Operating Procedure*

Objective: Protect stream banks, minimize compaction of soils, and minimize the breakage, abrasion, compaction, or displacement of vegetation.

Requirement/Standard:

- a. Ground operations shall be allowed only when frost and snow cover is at sufficient depths to protect the tundra. Ground operations shall cease when the spring snowmelt begins (approximately May 5 in the foothills area where elevations reach or exceed 500 feet and approximately May 15 in the northern coastal areas). The exact dates will be determined by the AO.
- b. Only low-ground-pressure vehicles shall be used for on-the-ground activities off ice roads or pads. A list of approved vehicles can be obtained from the AO. Limited use of tractors equipped with wide tracks or “shoes” will be allowed to pull trailers, sleighs, or other equipment with approved undercarriage. Note: This provision does not include the use of heavy equipment such as front-end loaders and similar equipment required during ice road construction.
- c. Bulldozing of tundra mat and vegetation, trails, or seismic lines is prohibited; however, on existing trails, seismic lines or camps, clearing of drifted snow is allowed to the extent that the tundra mat is not disturbed.
- d. To reduce the possibility of ruts, vehicles shall avoid using the same trails for multiple trips unless necessitated by serious safety or superseding environmental concern. This provision does not apply to hardened snow trails for use by low-ground-pressure vehicles such as Rolligons.
- e. The location of winter ice roads shall be designed and located to minimize compaction of soils and the breakage, abrasion, compaction, or displacement of vegetation. Offsets may be required to avoid using the same route or track in the subsequent year.

#### *C-3 Required Operating Procedure*

Objective: Maintain natural spring runoff patterns, avoid flooding, prevent streambed sedimentation, protect water quality and protect stream banks.

## ALTERNATIVES

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Requirement/Standard: Crossing of waterway courses shall be made using a low-angle approach. Snow and ice bridges shall be removed, breached, or slotted before spring breakup. Ramps and bridges shall be substantially free of soil and debris.

### *C-4 Required Operating Procedure*

Objective: Avoid additional freeze-down of deep-water pools harboring over-wintering fish and invertebrates used by fish.

Requirement/Standard: Travel up and down streambeds is prohibited unless it can be demonstrated that there will be no additional impacts from such travel to over-wintering fish or the invertebrates they rely on. Rivers and streams shall be crossed at shallow riffles from point bar to point bar whenever possible.

## **D. Oil and Gas Exploratory Drilling**

### *D-1 Lease Stipulation*

Objectives: Protect fish-bearing rivers, streams, and lakes from blowouts and minimize alteration of riparian habitat.

Requirement/Standard: Exploratory drilling is prohibited in rivers and streams, as determined by the active floodplain, and fish-bearing lakes, except where the lessee can demonstrate on a site-specific basis that impacts would be minimal, or it is determined that there is no feasible or prudent alternative.

### *D-2 Lease Stipulation*

Objective: Minimize surface impacts from exploratory drilling.

Requirement/Standard: Exploratory drilling shall be limited to temporary facilities such as ice pads, ice roads, ice airstrips, and temporary platforms, unless the lessee demonstrates that construction of permanent facilities such as gravel airstrips, storage pads, and connecting roads is environmentally preferable.

## **E. Facility Design and Construction**

### *E-1 Required Operating Procedure*

Objective: Protect subsistence use and access to traditional subsistence hunting and fishing areas and minimize the impact of oil and gas activities on air, land, water, fish and wildlife resources.

Requirement/Standard: All roads must be designed, constructed, maintained, and operated to create minimal environmental impacts and to protect subsistence use and access to traditional subsistence hunting and fishing areas. Subject to approval by the AO, the construction, operation, and maintenance of oil field roads is the responsibility of the lessee. Note: This provision does not apply to intercommunity or other permanent roads constructed with public funds for general transportation purposes. This preserves the opportunity to plan, design and construct public transportation systems to meet the economic, transportation, and public health and safety needs of the State of Alaska and/or communities within the National Petroleum Reserve – Alaska.

### *E-2 Lease Stipulation*

Objective: Protect fish-bearing water bodies, water quality, and aquatic habitats.

Requirement/Standard: The design and location of permanent oil and gas facilities within 500 feet of fish-bearing or 100 feet of non-fish-bearing waterbodies will only be approved on a case by case basis if the lessee can demonstrate that impacts to fish, water quality, and aquatic and riparian habitats are minimal. Note: Also refer to Area-Specific Stipulations and ROPs for Rivers Area (Lease Stipulation K-1) and Deep Water Lakes (Lease Stipulation K-2).

### *E-3 Lease Stipulation*

Objective: Maintain free passage of marine and anadromous fish and protect subsistence use and access to traditional subsistence hunting and fishing.

Requirement/Standard: Causeways and docks are prohibited in river mouths or deltas. Artificial gravel islands and bottom-founded structures are prohibited in river mouths or active stream channels on river deltas. Causeways, docks, artificial islands, and bottom-founded structures shall be designed to ensure free passage of marine and anadromous fish and to prevent significant changes to nearshore oceanographic circulation patterns and water quality characteristics. A monitoring program may be required to address the objectives of water quality and free passage of fish.

*E-4 Required Operating Procedure*

Objective: Minimize the potential for pipeline leaks, the resulting environmental damage and industrial accidents.

Requirement/Standard: All pipelines shall be designed, constructed, and operated under an AO-approved Quality Assurance/Quality Control plan that is specific to the product transported.

*E-5 Required Operating Procedure*

Objective: Minimize impacts of the development footprint.

Requirement/Standard: Facilities shall be designed and located to minimize the development footprint to the maximum extent practicable considering environmental, economic, and social impacts. Note: Where aircraft traffic is a concern, consideration shall be given to balancing gravel pad size and available supply storage capacity with potential reductions in the use of aircraft to support oil and gas operations.

*E-6 Required Operating Procedure*

Objective: Reduce the potential for ice-jam flooding, impacts to wetlands and floodplains, erosion, alteration of natural drainage patterns, and restriction of fish passage.

Requirement/Standard: Stream and marsh crossings shall be designed and constructed to ensure free passage of fish, maintain natural drainage, and minimize adverse effects to natural stream flow. Note: Bridges, rather than culverts, are the preferred method for crossing rivers. When necessary, culverts can be constructed on smaller streams, if they are large enough to avoid restricting fish passage or adversely affecting natural stream flow.

*E-7 Required Operating Procedure*

Objective: Minimize disruption of caribou movement and subsistence use.

Requirement/Standard: Pipelines and roads shall be designed to allow the free movement of caribou and the safe, unimpeded passage of the public while participating in traditional subsistence activities. Listed below are the accepted design practices:

- a. Above ground pipelines shall be elevated a minimum of 7 feet as measured from the ground to the bottom of the pipeline at vertical support members.
- b. In areas where facilities or terrain may funnel caribou movement, ramps over pipelines, buried pipelines, or pipelines buried under roads may be required by the AO after consultation with federal, state, and NSB regulatory and resource agencies (as appropriate, based on agency legal authority and jurisdictional responsibility).
- c. A minimum distance of 500 feet between pipelines and roads should be maintained when feasible. Separating roads from pipelines may not be feasible within narrow land corridors between lakes and where pipelines and roads converge on a drill pad.

*E-8 Required Operating Procedure*

Objective: Minimize the impact of mineral materials mining activities on air, land, water, fish, and wildlife resources.

## ALTERNATIVES

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Requirement/Standard: Gravel mine site design and reclamation will be in accordance with a plan approved by the AO. The plan shall consider:

- a. Locations outside the active flood plain.
- b. Design and construction of gravel mine sites within active flood plains to serve as water reservoirs for future use.
- c. Potential use of the site for enhancing fish and wildlife habitat.

### *E-9 Required Operating Procedure*

Objective: Avoidance of human-caused increases in populations of predators of ground nesting birds.

Requirement/Standard: Lessee shall utilize best available technology to prevent facilities from providing nesting, denning, or shelter sites for ravens, raptors, gulls and foxes. The lessee shall provide the AO with an annual report on the use of oil and gas facilities by ravens, raptors and foxes as nesting, denning, and shelter sites.

### *E-10 Required Operating Procedure*

Objective: Prevention of migrating waterfowl, including species listed under the Endangered Species Act, from striking oil and gas and related facilities during low light conditions.

Requirement/Standard: Except for safety lighting, illumination of higher structures shall be designed to direct artificial exterior lighting inward and downward, rather than upward and outward. All drilling structures, production facilities, and other structures that exceed 20 feet in height shall be illuminated as outlined above.

### *E-11 Required Operating Procedure*

Objective: Minimize the take of species listed under the Endangered Species Act and minimize the disturbance of other species of interest from direct or indirect interaction with oil and gas facilities.

Requirement/Standard: In accordance with the guidance below, before the approval of facility construction, aerial surveys of the following species shall be conducted within any area proposed for development.

#### Special Conditions in Spectacled and/or Steller's Eiders Habitats:

- a. Surveys shall be conducted by the lessee for at least 3 years before authorization of construction, if such construction is within the USFWS North Slope eider survey area and at least 1 year outside that area. Results of aerial surveys and habitat mapping may require additional ground nest surveys. Spectacled and/or Steller's eider surveys shall be conducted following accepted BLM-protocol during the second week of June.
- b. If spectacled and/or Steller's eiders are determined to be present within the proposed development area, the applicant shall consult with the USFWS and BLM in the design and placement of roads and facilities in order to minimize impacts to nesting and brood-rearing eiders and their preferred habitats. Such consultation shall address timing restrictions and other temporary mitigating measures, construction of permanent facilities, placement of fill, alteration of eider habitat, aircraft operations, and introduction of high noise levels.
- c. To reduce the possibility of spectacled and/or Steller's eiders striking above ground utility lines (power and communication), such lines shall either be buried in access roads, or suspended on vertical support members, to the extent practicable. Support wires associated with communication towers, radio antennas, and other similar facilities, shall be clearly marked along their entire length to improve visibility for low flying birds. Such markings shall be jointly developed through consultation with the USFWS.



1. Overhead power or communication lines may be allowed when located entirely within the boundaries of a facility pad;
2. Overhead power or communication lines may be allowed when engineering constraints at the specific location make it unfeasible to bury or connect them to a vertical support member, or
3. Overhead power or communication lines may be allowed when human safety would be compromised by other methods. (Note: This requirement standard would be Planning Area wide.)

Special Conditions in Yellow-billed Loon Habitats:

- a. Aerial surveys shall be conducted by the lessee for at least 3 years before authorization of construction of facilities proposed for development which are within 1 mile of a lake 25 acres or larger in size. These surveys along shorelines of large lakes shall be conducted following accepted BLM protocol during nesting in late June and during brood rearing in late August.
- b. Should yellow-billed loons be present, the design and location of facilities must be such that disturbance is minimized. Accepted mitigation is a 1-mile buffer around all recorded nest sites and a minimum 1,625-foot (500-meter) buffer around the remainder of the lake shoreline. Development may be prohibited within buffers or activities curtailed while birds are present.

*E-12 Required Operating Procedure*

Objective: Use ecological mapping as a tool to assess wildlife habitat before development of permanent facilities, to conserve important habitat types during development.

Requirement/Standard: An ecological land classification map of the development area shall be developed before approval of facility construction. The map will integrate geomorphology, surface form, and vegetation at a scale, level of resolution, and level of positional accuracy adequate for detailed analysis of development alternatives. The map shall be prepared in time to plan one season of ground-based wildlife surveys, if deemed necessary by the AO, before approval of the exact facility location and facility construction.

*E-13 Required Operating Procedure*

Objective: Protect cultural and paleontological resources.

Requirement/Standard: Lessees shall conduct a cultural and paleontological resources survey prior to any ground-disturbing activity. Upon finding any potential cultural or paleontological resource, the lessee or their designated representative shall notify the AO and suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the AO.

**F. Use of Aircraft for Permitted Activities**

*F-1 Required Operating Procedure*

Objective: Minimize the effects of low-flying aircraft on wildlife, traditional subsistence activities, and local communities.

Requirement/Standard: The lessee shall ensure that aircraft used for permitted activities maintain altitudes according to the following guidelines:

- a. Aircraft shall maintain an altitude of at least 1,500 feet above ground level (AGL) when within ½ mile of cliffs identified as raptor nesting sites from April 15 through August 15 and within ½ mile of known gyrfalcon nest sites from March 15 to August 15, unless doing so would endanger human life or violate

- safe flying practices. Permittees shall obtain information from the BLM necessary to plan flight routes when routes may go near falcon nests.
- b. Aircraft shall maintain an altitude of at least 1,000 feet AGL (except for takeoffs and landings) over caribou winter ranges from October 1 through May 1, unless doing so would endanger human life or violate safe flying practices. Caribou wintering areas will be defined annually by the AO.
  - c. The number of takeoffs and landings to support oil and gas operations with necessary materials and supplies should be limited to the maximum extent possible. During the design of proposed oil and gas facilities, larger landing strips and storage areas should be considered so as to allow larger aircraft to be employed, resulting in fewer flights to the facility.
  - d. Use of aircraft, especially rotary wing aircraft, near known subsistence camps and cabins or during sensitive subsistence hunting periods (spring goose hunting and fall caribou and moose hunting) should be kept to a minimum.
  - e. Aircraft used for permitted activities shall maintain an altitude of at least 2,000 feet AGL (except for takeoffs and landings) over the Teshekpuk Lake Caribou Habitat Area ([Map 2-2](#)) from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices. Aircraft use (including fixed wing and helicopter) by oil and gas lessees in the Goose Molting Area ([Map 2-2](#)) should be minimized from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices. Also see Lease Stipulation K-4.

### **G. Oilfield Abandonment**

#### *G-1 Lease Stipulation*

Objective: Ensure the final disposition of the land meets the current and future needs of the public.

Requirement/Standard: Upon abandonment or expiration of the lease, all oil and gas-related facilities shall be removed and sites rehabilitated to as near the original condition as practicable, subject to the review of the AO. The AO may determine that it is in the best interest of the public to retain some or all facilities.

### **H. Subsistence Consultation for Permitted Activities**

“Consultation” may take place by in-person meetings, teleconference, videoconference, exchange of written documents, electronic mail, or other means appropriate to the circumstances. Consultation does not include public meetings that are primarily for the purpose of information distribution, unless it is explained at the beginning of the meeting that there is an open dialogue, and that comments, concerns, or other information are being actively solicited.

#### *H-1 Required Operating Procedure*

Objective: Provide opportunities for participation in planning and decision making to prevent unreasonable conflicts between subsistence uses and oil and gas and related activities.

Requirement/Standard: Lessee/permittee shall consult directly with affected communities using the following guidelines:

- a. Before submitting an application to the BLM, the applicant shall consult with directly affected subsistence communities, the NSB, and the National Petroleum Reserve – Alaska Subsistence Advisory Panel to discuss the siting, timing, and methods of proposed operations. Through this consultation, the applicant shall make every reasonable effort, including such mechanisms as conflict avoidance agreements and mitigating measures, to ensure that proposed activities will not result in unreasonable interference with subsistence activities.

- b. The applicant shall submit documentation of consultation efforts as part of its operations plan. Applicants should submit the proposed plan of operations to provide an adequate time for review and comment by the National Petroleum Reserve – Alaska Subsistence Advisory Panel and to allow time for formal Government-to-Government consultation with Native Tribal governments. The applicant shall submit documentation of its consultation efforts and a written plan that shows how its activities, in combination with other activities in the area, will be scheduled and located to prevent unreasonable conflicts with subsistence activities. Operations plans must include a discussion of the potential effects of the proposed operation, and the proposed operation in combination with other existing or reasonably foreseeable operations.
- c. A subsistence plan addressing the following items must be submitted:
  1. A detailed description of the activity(ies) to take place (including the use of aircraft).
  2. A description of how the lessee/permittee will minimize and/or deal with any potential impacts identified by the AO during the consultation process.
  3. A detailed description of the monitoring effort to take place, including process, procedures, personnel involved, and points of contact both at the work site and in the local community.
  4. Communication elements to provide information on how the applicant will keep potentially affected individuals and communities up-to-date on the progress of the activities and locations of possible, short-term conflicts (if any) with subsistence activities. Communication methods could include holding community meetings, open house meetings, workshops, newsletters, radio and television announcements, etc.
  5. Procedures necessary to facilitate access by subsistence users to conduct their activities.

In the event that no agreement is reached between the parties, the AO shall consult with the directly involved parties and determine which activities will occur, including the timeframes. During development, monitoring plans must be established for new permanent facilities, including pipelines, to assess an appropriate range of potential effects on resources and subsistence as determined on a case-by-case basis given the nature and location of the facilities. The scope, intensity, and duration of such plans will be established in consultation with the AO and Subsistence Advisory Panel.

#### *H-2 Required Operating Procedures*

Objective: Prevent unreasonable conflicts between subsistence activities and geophysical (seismic) exploration.

Requirement/Standard: In addition to the consultation process described above for permitted activities, before applying for permits to conduct geophysical (seismic) exploration, the applicant shall consult with local communities and residents.

Because of the large land area covered by typical geophysical operations and the potential to impact a large number of subsistence users during the exploration season, the permittee/operator will notify in writing all potentially affected long-term cabin and camp users.

The official recognized list of cabin and campsite users is the NSB's 2001 inventory of cabins and campsites.

For the purpose of this standard, a potentially affected cabin/campsite is defined as any camp or campsite within the boundary of the area subject to proposed geophysical exploration and/or within 1,200 feet of actual or planned travel routes used to supply the seismic operations while it is in operation.

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A copy of the notification letter and a list of potentially affected users shall also be provided to the office of the appropriate Native Tribal government.

Based on that consultation, the AO may prohibit seismic work up to 1,200 feet of any known, long-term, cabin or campsite. Generally, the AO will allow wintertime seismic work to be conducted within 300 feet of a long-term cabin or campsite that is not in use.

### **I. Orientation Programs Associated with Permitted Activities**

#### *I-1 Required Operating Procedure*

Objective: Minimize cultural and resource conflicts.

Requirement/Standard: All personnel involved in oil and gas and related activities shall be provided information concerning applicable stipulations, ROPs, standards, and specific types of environmental, social, traditional, and cultural concerns that relate to the region. The lessee/permittee shall ensure that all personnel involved in permitted activities shall attend an orientation program at least once a year. The proposed orientation program shall be submitted to the AO for review and approval and should:

- a. Provide sufficient detail to notify personnel of applicable stipulations and ROPs as well as inform individuals working on the project of specific types of environmental, social, traditional, and cultural concerns that relate to the region.
- b. Address the importance of not disturbing archaeological and biological resources and habitats, including endangered species, fisheries, bird colonies, and marine mammals, and provide guidance on how to avoid disturbance.
- c. Include guidance on the preparation, production, and distribution of information cards on endangered and/or threatened species.
- d. Be designed to increase sensitivity and understanding of personnel to community values, customs, and lifestyles in areas in which personnel will be operating.
- e. Include information concerning avoidance of conflicts with subsistence, commercial fishing activities, and pertinent mitigation.
- f. Include information for aircraft personnel concerning subsistence activities and areas/seasons that are particularly sensitive to disturbance by low-flying aircraft. Of special concern is aircraft use near traditional subsistence cabins and campsites, flights during spring goose hunting and fall caribou and moose hunting seasons, and flights near North Slope communities.
- g. Provide that individual training is transferable from one facility to another except for elements of the training specific to a particular site.
- h. Include on-site records of all personnel who attend the program for so long as the site is active, though not to exceed the 5 most recent years of operations. This record shall include the name and dates(s) of attendance of each attendee.
- i. Include a module discussing bear interaction plans to minimize conflicts between bears and humans.

### **J. Endangered Species Act - Section 7 Consultation Process**

The lease areas may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or to have some other special status. The BLM may recommend modifications to exploration and

development proposals to further its conservation and management objective to avoid BLM-approved activities that will contribute to the need to list such a species or their habitat. The BLM may require modifications to or disapprove a proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 USC § 1531 et seq., including completion of any required procedure for conference or consultation.

#### **2.6.4.2 Stipulations That Apply in Biologically Sensitive Areas**

In addition to the stipulations and ROPs developed to protect surface resources throughout the Planning Area, the BLM has identified eleven additional stipulations in this section that would specifically apply to biologically sensitive areas. Two of these stipulations (Rivers Area [Lease Stipulation K-1] and Deep Water Lakes [K-2]) would apply to biologically sensitive rivers and lakes throughout the Planning Area.

The other nine stipulations were developed to ensure that the BLM would comply with the provisions of the NPRPA that require any oil and gas exploration or development within a special area to “be conducted in a manner which will assure the maximum protection of such surface resources to the extent consistent with the requirements of [the] Act for the exploration of the reserve” (42 USC § 6504[b], 6508). In addition, oil and gas activities must include or provide for “conditions, restrictions, and prohibitions as the Secretary [of the Interior] deems necessary or appropriate to mitigate reasonably foreseeable and significantly adverse effects on the surface resources of the National Petroleum Reserve – Alaska (42 USC § 6508[1]). Stipulations K-3 through K-8 would ensure that the BLM fulfills these statutory mandates in this amendment by providing special protections in the Teshekpuk Lake Special Area and Colville River Special Area. Specifically, Stipulation K-3 would ensure that exploration and development activities do not conflict with traditional subsistence users, historic travel routes, or fish and wildlife resources. Lease Stipulation K-4 would minimize disturbance to molting geese and loss of goose molting, eider, and other waterfowl habitat on or near Teshekpuk Lake from oil and gas exploration and development activities. Lease Stipulation K-5 would provide similar types of protection to caribou and their habitats near the lake. Under Stipulation K-6, coastal areas within the Teshekpuk Lake Special Area would be afforded special protection to minimize alteration of caribou movement within caribou coastal insect-relief areas and to protect other coastal and marine resources. Lease Stipulation K-7 would prohibit permanent oil and gas facilities, except for essential pipeline and road crossings, near the Colville, Kikiakrovak, and Kogosukruk rivers within the Colville River Special Area to protect the rivers’ natural features and raptor habitat. Lease Stipulation K-8 would prohibit most surface structures in the Pik Dunes to protect caribou insect-relief habitat and the geologic and scenic uniqueness of the dunes. Lease Stipulation K-9 would protect caribou movement in the area between Teshekpuk Lake and Kogru Inlet. Lease Stipulation K-10 minimizes disturbance to caribou calving habitat south and southeast of Teshekpuk Lake. Lease Stipulation 11 protects key surface resources by limiting surface disturbance within identified lease tracts.

*K-1 Lease Stipulation – Rivers Area* (identified in [Section 2.2.1.1](#); Rivers Area)

**Objective:** Minimize the disruption of natural flow patterns and changes to water quality; the disruption of natural functions resulting from the loss or change to vegetative and physical characteristics of floodplain and riparian areas; the loss of spawning, rearing or over-wintering habitat for fish; the loss of cultural and paleontological resources; the loss of raptor habitat; impacts to subsistence cabin and campsites; the disruption of subsistence activities; and impacts to scenic and other resource values.

**Requirement/Standard:** Permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines, are prohibited in the streambed and adjacent to the rivers listed below at the distances identified. With the exception of the Ikpiuk River, these setbacks are measured from the bank of the river as determined by the hydrology at the time of application. The standard setback is ½ mile (from the bank’s highest high water mark) and increased to ¾ mile (from the bank’s highest high water mark) where subsistence cabin and campsites are numerous. Along the Colville River and a portion of the Ikpiuk a 1-mile (from the bank’s highest high water mark) setback is required to protect important raptor habitat. On a case-by case basis, and in consultation with federal, state, and NSB regulatory and resource agencies (as appropriate, based on agency legal authority and jurisdictional responsibility), essential pipeline

and road crossings to the main channel will be permitted (unless noted otherwise) through setback areas. The above setbacks may not be practical within river deltas. In these situations, permanent facilities shall be designed to withstand a 200-year flood event.

- a. Colville River: a 1-mile setback from the northern bluff (or bank if there is no bluff) of the Colville River extending the length of that portion of the river located within the Planning Area. Note: The Planning Area excludes conveyed Native lands along the lower reaches of the Colville River. Development of road crossings intended to support oil and gas activities shall be consolidated with other similar projects and uses to the maximum extent possible. Note: This provision does not apply to intercommunity or other permanent roads constructed with public funds for general transportation purposes. This preserves the opportunity to plan, design, and construct public transportation systems to meet the economic, transportation, and public health and safety needs of the State of Alaska and/or communities within the National Petroleum Reserve – Alaska.
- b. Ikpiuk River: a  $\frac{3}{4}$ -mile setback from each side of the centerline (1½ miles total) of the Ikpiuk River extending from the mouth south to Section 19, Township 7 North, Range 11 West, U.M. (Umiat Meridian). From Section 19, Township 7 North, Range 11 West, U.M., to Section 4, Township 3 North, Range 12 West, U.M., a 1-mile setback is required. Beginning at Section 4, Township 3 North, Range 12 West, U.M., a  $\frac{1}{2}$ -mile setback from the centerline (1 mile total) will be required to the confluence of the Kigalik River and Maybe Creek. Note: The setback distances only apply to the east bank where the Ikpiuk River is the Planning Area boundary.
- c. Miguakiak River: a  $\frac{1}{2}$  mile (from the bank's highest high water mark) setback from the Miguakiak River.
- d. Kikiakrorak and Kogosukruk Rivers: Note: The following discussion refers only to portions of the Kikiakrorak River downstream from Township 2 North, Range 4 West, U.M. and the Kogosukruk River (including the four tributaries off the southern bank) downstream from Township 2 North, Range 3 West, U.M. No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within 1 mile of the top of the bluff (or bank if there is no bluff) on either side of the rivers and several of the Kogosukruk River tributaries.
- e. Fish Creek: No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within 3 miles (from the bank's highest high water mark) of the creek downstream from the eastern edge of Section 31, Township 11 North, Range 1 East, U.M. or within  $\frac{1}{2}$  mile (from the bank's highest high water mark) of the creek farther upstream.
- f. Judy Creek (in the Planning Area): No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within  $\frac{1}{2}$  mile (from the bank's highest high water mark) of these waterbodies.
- g. Tingmiaksiqvik River (identified as the Ublutuooh River on USGS quadrangle maps): No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within  $\frac{1}{2}$  mile (from the bank's highest high water mark) of this river from the eastern edge of Section 22, Township 8 North, Range 1 East U.M. (the western boundary of the Colville River Special Area) downstream to the confluence with Fish Creek.

*K-2 Lease Stipulation - Deep Water Lakes* (identified in [Section 2.2.1.2](#); Deep Water Lakes)

Objective: Minimize the disruption of natural flow patterns and changes to water quality; the disruption of natural functions resulting from the loss or change to vegetative and physical characteristics of deep water lakes; the loss of spawning, rearing or over wintering habitat for fish; the loss of cultural and paleontological resources; impacts to subsistence cabin and campsites; and the disruption of subsistence activities.

Requirement/Standard: Generally, permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines, are prohibited on the lake or lakebed and within ¼ mile of the ordinary high water mark of any deep lake as determined to be in lake zone III (i.e., depth greater than 13 feet [4 meters]; Mellor 1985). On a case-by case basis, and in consultation with federal, state and NSB regulatory and resource agencies (as appropriate based on agency legal authority and jurisdictional responsibility), essential pipeline, road crossings, and other permanent facilities may be considered through the permitting process in these areas where the lessee can demonstrate on a site-specific basis that impacts would be minimal or if it is determined that there is no feasible or prudent alternative. Please see discussion regarding BLM's permitting/authorization process, [Section 2.6.2](#).

*K-3 Stipulation - Teshekpuk Lake Shoreline* (identified in [Section 2.2.1.3](#);

(Note: Under the Final Preferred Alternative Teshekpuk Lake would be deferred from additional oil and gas leasing)

Objective: Minimize the disruption of natural flow patterns and changes to water quality; the disruption of natural functions resulting from the loss or change to vegetative and physical characteristics of this large and regionally significant deep water lake; the loss of cultural and paleontological resources; impacts to subsistence cabins, campsites and associated activities; and to protect fish and wildlife habitat including important insect relief areas.

Requirement/Standard: Permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines, are prohibited within ¼ mile of the ordinary high water mark of Teshekpuk Lake – No Exceptions.

*K-4 Lease Stipulation - Goose Molting Area* (identified in [Section 2.2.1.4](#); Goose Molting Area).

Objective: Minimize disturbance to molting geese and loss of goose molting habitat in and around lakes in the Goose Molting Area.

Requirement/Standard (General):

Within the Goose Molting Area no permanent oil and gas facilities, except for pipelines and publicly-funded community roads, would be allowed on the approximately 217,000 acres illustrated on [Map 2-4](#). No exceptions will be considered.

Requirement/Standard (Exploration): In goose molting habitat area exploratory drilling shall be limited to temporary facilities such as ice pads, ice roads, ice airstrips, and temporary platforms, unless the lessee demonstrates that construction of permanent facilities (outside the identified Goose Molting No Surface Occupancy Areas) such as gravel airstrips, storage pads, and connecting roads is environmentally preferable (Also see Stipulation K-11 regarding allowable surface disturbance). In addition, the following standards will be followed for permitted activities:

- a. From May 20 through August 20 exploratory drilling and associated activities are prohibited. The intent of this rule is to restrict exploration drilling during the period when geese are present.
- b. Water extraction from any lake used by molting geese shall not alter hydrological conditions that could adversely affect identified goose-feeding habitat along lakeshore margins. Considerations will be given to seasonal use by operators (generally in winter) and geese (generally in summer), as well as recharge to lakes from the spring snowmelt.
- c. Oil and gas exploration activities will avoid alteration (e.g., damage or disturbance of soils, vegetation, or surface hydrology) of critical goose-feeding habitat types along lakeshore margins (grass/sedge/moss), as identified by the AO in consultation with the USFWS.
- d. Aircraft use (including fixed wing and helicopter) by oil and gas lessees and all other users shall be minimized, and possibly suspended, in and around Goose Molting Area lakes from May 20 through August 20 unless doing so would endanger human life or violate safe flying practices.

Requirement/Standard (Development): In Goose Molting Area, the following standards will be followed for permitted activities:



## ALTERNATIVES

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- a. Major construction activities using heavy equipment (e.g., sand/gravel extraction and transport, pipeline and pad construction, but not drilling from existing production pads) shall be suspended within Goose Molting Area from May 20 through August 20, unless approved by the AO in consultation with the appropriate federal, state, and NSB regulatory and resource agencies. The intent of this rule is to restrict activities that would disturb molting geese during the period when geese are present.
- b. Water extraction from any lakes used by molting geese shall not alter hydrological conditions that could adversely affect identified goose-feeding habitat along lakeshore margins. Considerations will be given to seasonal use by operators (generally in winter) and geese (generally in summer), as well as recharge to lakes from the spring snowmelt.
- c. Oil and gas activities will avoid altering (i.e., damage or disturbance of soils, vegetation, or surface hydrology) critical goose-feeding habitat types along lakeshore margins (grass/sedge/moss).
- d. Permanent oil and gas facilities (including gravel roads, pads, and airstrips, but excluding pipelines) and material sites will be sited outside the identified NSO areas. Additional limits on development footprint apply, see Lease Stipulation K-11.
- e. Between May 20 and August, 20 within the Goose Molting Area, oil and gas facilities shall incorporate features (e.g., temporary fences, siting/orientation) that screen/shield human activity from view of any Goose Molting Area lake, as identified by the AO in consultation with appropriate federal, state, and NSB regulatory and resource agencies.
- f. Strategies to minimize ground traffic will be implemented from May 20 through August 20. These strategies may include limiting trips, use of convoys, different vehicle types, etc. to the extent practicable.
- g. Aircraft use (including fixed wing and helicopter) within the Goose Molting Area ,by authorized users shall be restricted from May 20 to August 20 unless doing so would endanger human life or violate safe flying practices. Restrictions may include 1) limited to two round-trip flights/week, and 2) restricted to flight corridors will be established by the BLM after discussions with appropriate federal, state, and NSB regulatory and resource agencies. Note: This site-specific stipulation is not intended to restrict flights necessary to survey wildlife to gain information necessary to meet the stated objective of this stipulation. However, flights necessary to gain this information would be restricted to the minimum necessary to collect such data.

*K-5 Lease Stipulation - Teshekpuk Lake Caribou Habitat Area* (identified in [Section 2.2.1.5](#); Teshekpuk Lake Caribou Habitat Area)

Objective: Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect-relief, and migration.

Requirement/Standard: In the Teshekpuk Lake Caribou Habitat Area the following standards will be applied to permitted activities:

- a. Before authorization of construction of permanent facilities (outside NSO areas established in other stipulations), the lessee shall design and implement a study of caribou movement unless an acceptable study(s) has been completed within the last 10 years. The study shall include a minimum of 3 years of current data on caribou movements and the study design shall be approved by the AO and should provide information necessary to determine facility (including pipeline) design and location. Lessees may submit individual study proposals or they may combine with other lessees in the area to do a single, joint study for the entire Teshekpuk Lake Caribou Habitat Area. Study data may be gathered concurrently with other activities.



- b. Within the Teshekpuk Lake Caribou Habitat Area, lessees shall orient linear corridors when laying out oil field developments to the extent practicable, to address migration and corralling effects and to avoid loops of road and/or pipeline that connect facilities.
- c. Ramps over pipelines, buried pipelines, or pipelines buried under the road may be required by the AO, after consultation with appropriate federal, state, and NSB regulatory and resource agencies, in the Teshekpuk Lake Caribou Habitat Area where pipelines potentially impede caribou movement.
- d. The following ground-traffic restrictions shall apply to permanent oil and gas-related roads in the areas and time periods indicated:
  1. Within the Teshekpuk Lake Caribou Habitat Area, from May 20 through August 20, traffic speed shall not exceed 15 miles per hour when caribou are within ½ mile on the road. Additional strategies may include limiting trips, using convoys, using different vehicle types, etc., to the extent practicable.
  2. The lessee or a contractor shall observe caribou movement from May 20 through August 20. Based on these observations, traffic will be stopped temporarily to allow a crossing by 10 or more caribou. Sections of road will be evacuated when migrations of large numbers of caribou appears to imminent.
  3. Major equipment, materials, and supplies to be used at oil and gas work sites in the Teshekpuk Lake Caribou Habitat Area shall be stockpiled prior to or after the period of May 20 through August 20 to minimize road traffic during that period.
  4. Use of aircraft larger than a Twin Otter by authorized users of the Planning Area, including oil and gas lessees, from May 20 through August 20 within the Teshekpuk Lake Caribou Habitat Area, shall be for emergency purposes only.
  5. Fixed-wing aircraft takeoffs and landings by authorized users of the Planning Area shall be limited to an average of one round-trip flight per day from May 20 through June 20, at aircraft facilities within the Teshekpuk Lake Caribou Habitat Areas.
  6. Aircraft shall maintain a minimum height of 1,000 feet AGL (except for takeoffs and landings) over caribou winter ranges from October 1 through May 1, and 2,000 feet AGL over the Teshekpuk Lake Caribou Habitat Area from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices.

*K-6 Stipulation - Coastal Area* (identified in [Section 2.2.1.6](#); Coastal Area)

**Objective:** Minimize hindrance or alteration of caribou movement within caribou coastal insect-relief areas; to prevent contamination of marine waters; loss of important bird habitat; alteration or disturbance of shoreline marshes; and impacts to subsistence resources activities.

**Requirement/Standard:** In the Coastal Area, permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines established to support exploration and development activities shall be located at least ¾ mile inland from the coastline to the extent practicable. Where, as a result of technological limitations, economics, logistics, or other factors, a facility must be located within ¾ mile inland of the coastline, the practicality of locating the facility at previously occupied sites such as Camp Lonely, various Husky/USGS drill sites, and Distant Early Warning (DEW)-Line sites, shall be considered. Use of existing sites within ¾ mile of the coastline shall also be acceptable where it is demonstrated that use of such sites will reduce impacts to shorelines or otherwise be environmentally preferable. All lessees/permittees involved in activities in the immediate area must coordinate use of these new or existing sites with all other prospective users. Before conducting open water activities, the lessee shall consult with the Alaska Eskimo

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Whaling Commission, the Nuiqsut Whaling Association, Barrow Whaling Captains Association, and the NSB to minimize impacts to the fall and spring subsistence whaling activities of the communities of the North Slope.

*K-7 Lease Stipulation - Colville River Special Area* (identified in [Section 2.2.1.7](#); Colville River Special Area)

Objective: Prevent or minimize loss of raptor foraging habitat (also see Lease Stipulation K-1; Rivers Area).

Requirement/Standard for Permanent Facilities: If necessary to construct permanent facilities within the Colville Special Area, all reasonable and practicable efforts shall be made to locate permanent facilities as far from raptor nests as feasible. Within 15 miles of raptor nest sites, significant alteration of high quality foraging habitat shall be prohibited unless the lessee can demonstrate on a site-specific basis that impacts would be minimal or it is determined that there is no feasible or prudent alternative. Of particular concern are ponds, lakes, wetlands, and riparian habitats.

Note: On a case-by case basis, and in consultation with appropriate federal and state regulatory and resource agencies, essential pipeline and road crossings will be permitted through these areas where no other feasible or prudent options are available.

Requirement/Standard for Activities: Restriction applies to overland moves, seismic work, and any similar use of heavy equipment (other than actual excavations as part of construction) on tundra surfaces during the winter season:

Motorized ground-vehicle use shall be minimized within the Colville Raptor, Passerine, and Moose Area from April 15 through August 5, with the exception that use will be minimized in the vicinity of gyrfalcon nests beginning March 15. Such use will remain ½ mile away from known raptor nesting sites, unless authorized by the AO.

*K-8 Lease Stipulation- Pik Dunes* (identified in [Section 2.2.1.8](#); Pik Dunes)

Objective: Retain unique qualities of the Pik Dunes, including geologic and scenic uniqueness, insect-relief habitat for caribou, and habitat for several uncommon plant species.

Requirement/Standard: Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited within the Pik Dunes.

*K-9 Lease Stipulation – Caribou Movement Corridor* (identified in [Section 2.2.1.8](#); Caribou Movement Corridor)

Objective: Minimize disturbance and hindrance of caribou, or alteration of caribou movements (that are essential for all season use, including calving and rearing, insect-relief, and migration) in the area extending from the eastern shore of Teshekpuk Lake to approximately 4 miles eastward towards the Kogru Inlet.

Requirement/Standard: Within the Caribou Movement Corridor, no permanent oil and gas facilities, including pipelines, would be allowed on the approximately 16,500 acres illustrated on [Map 2-4](#). Note: In addition to the general stipulations and ROPs, site-specific stipulations, i.e. K-3, K-4, K-5, and K-11 would also apply.

*K-10 Lease Stipulation – Southern Caribou Calving Area* (identified in [Section 2.2.1.8](#), Southern Caribou Calving Area).

Objective: Minimize disturbance and hindrance of caribou, or alteration of caribou movements (that are essential for all season use, including calving and post calving, and insect-relief) in the area south/southeast of Teshekpuk Lake.

Requirement/Standard: Within the Southern Caribou Calving Area, no permanent oil and gas facilities, excluding pipelines, would be allowed on the approximately 141,000 acres illustrated on [Map 2-4](#). Note: In addition to the general stipulations and ROPs, site specific stipulations K-4, K-5, K-6, and K-11 would also apply.

*K-11 Lease Stipulation:* Lease Tracts A-G (identified in [Section 2.2.1.8](#), Lease Tracts A-G).

Objective: To protect key surface resources and subsistence resources/activities resulting from permanent oil and gas development and associated activities.

Requirement/Standard: Surface disturbance is limited to 300 acres within the following described lease tracts ([Map 2-4](#)); this does not include surface disturbance activities from pipeline construction (No Exceptions).

A. Total Acreage: 59,134:

17,745 acres = No Surface Occupancy for Permanent Oil and Gas facilities excluding pipelines (the 17,745 acres does not include 5,605 acres of overlap from Coastal NSO).

41,389 acres = Area open to development subject to general and site specific stipulations and required operating procedures.

The total development footprint cannot exceed 300 acres (0.5 % of total acreage) within the 41,389 acres of Goose Molting Area.

B. Total Acreage: 49,250:

28,347 acres = No Surface Occupancy for Permanent Oil and Gas facilities, excluding pipelines (the 28,347 acres does not include 5,131 acres of overlap from Coastal NSO).

20,903 acres = Area open to development subject to general stipulations and required operating procedures.

The total development footprint cannot exceed 300 acres (0.6 % of total acreage) within the 20,903 acres of Goose Molting Area.

C. Total Acreage: 46,085:

27,686 acres = No Surface Occupancy for Permanent Oil and Gas facilities, excluding pipelines (the 27,868 acres does not include 4,772 acres of overlap from Coastal NSO).

18,399 acres = Area open to development subject to general stipulations and required operating procedures.

The total development footprint cannot exceed 300 acres (0.7 % of total acreage) within the 18,398 acres of Goose Molting Area.

D. Total Acreage: 53,297:

39,531 acres = No Surface Occupancy for Permanent Oil.

and Gas facilities excluding pipelines (the 39,531 acres does not include 6,076 acres of overlap from Coastal NSO).

13,766 acres = Area open to development subject to general stipulations and required operating procedures.

The total development footprint cannot exceed 300 acres (0.5% of total acreage) within the 13,766 acres of Goose Molting Area.

E. Total Acreage: 51,388:

27,010 acres = No Surface Occupancy for Permanent Oil and Gas facilities, excluding pipelines.

24,378 acres = Area open to development subject to general stipulations and required operating procedures.

The total development footprint cannot exceed 300 acres (0.6% of total acreage) within the 24,378 acres of Goose Molting Area.

F. Total Acreage: 56,506:

39,844 acres = No Surface Occupancy for Permanent Oil and Gas facilities, excluding pipelines.

16,662 acres = Area open to development subject to general stipulations and required operating procedures.

The total development footprint cannot exceed 300 acres (0.5 % of total acreage) within the 16,661 acres of Goose Molting Area.

G. Total Acreage: 56,797:

35,904 acres = No Surface Occupancy for Permanent Oil and Gas facilities excluding pipelines (The 35,904 acres does not include 5,695 acres of overlap from Coastal NSO).

20,893 acres = Area open to development subject to general stipulations and required operating procedures.

The total development footprint cannot exceed 300 acres (0.5 % of total acreage) within the 20,892 acres of Goose Molting Area.

## 2.7 Monitoring

Monitoring of natural and cultural resources is required under the 1998 Northeast IAP/EIS ROD for the No Action Alternative, and is included under the stipulations and ROPs identified in [Section 2.6](#) (Stipulations and Required Operating Procedures) for the Final Preferred Alternative (D), and Alternatives B and C. Monitoring activities include the following:

- Monitoring the movements, distribution, and range use of caribous in areas proposed for development (Stipulation 29 in 1998 Northeast IAP/EIS; Lease Stipulation K-5[a] from [Section 2.6](#) [Stipulations and Required Operating Procedures]);
- Monitoring fish-bearing waters when projects impact fish-bearing and non fish-bearing water bodies to ensure free passage of fish and water quality (Stipulation 30; Lease Stipulation E-3);
- Monitoring caribou movements in areas with permanent roads (Stipulation 49; Lease Stipulation K-5[e]);
- Monitoring oil and gas exploration, development, and production effects on subsistence (Stipulation 59; ROP H-1);
- Conducting cultural and paleontological surveys in areas where ground-disturbing activities will take place (Stipulation 74; ROP E-13);
- Monitoring bear activity near development and production sites (Stipulation 76; ROP A-8); and
- Conducting aerial surveys of Steller's and spectacled eiders, and yellow-billed loons, in areas of facility construction (not required under 1998 Northeast IAP/EIS; ROP E-11).

In addition, funding has been provided by the State of Alaska to fund the National Petroleum Reserve – Alaska Impact Mitigation Program. During fiscal years 2000 through 2004, \$56,381,412 was awarded to North Slope communities under the program; another \$3 million is expected to be awarded in FY 2005 (Alaska Department of Community and Economic Development 2004). In the past 3 years, these funds were used to pay administrative salaries; build and maintain facilities in North Slope communities; upgrade equipment; conduct fish, waterfowl, gull, fox, and caribou surveys; monitor subsistence harvest; assess the impacts to fish from hydrocarbons; and provide health care training and education. Ongoing and proposed monitoring activities include the following:

- Inventorying of fish resources in the lakes and streams of the eastern National Petroleum Reserve – Alaska;
- Monitoring of subsistence harvests;
- Surveying of waterfowl use on North Slope;
- Tracking of Teshekpuk Lake Herd caribou and determination of their habitat use;
- Monitoring habitat use and movements of Arctic fox;
- Determination of caribou movements and distribution;
- Monitoring of effects of hydrocarbons on fish; and
- Monitoring movements, behavior, and distribution of glaucous gulls by satellite telemetry.

## 2.8 Effectiveness of Stipulations and Required Operating Procedures

The following table compares the prescriptive-based stipulations developed for the No Action Alternative (from the 1998 Northeast National Petroleum Reserve – Alaska ROD) with the performance-based lease stipulations and ROPs

developed for the Final Preferred Alternative (D) and alternatives B and C and probable effectiveness of stipulations and ROPs ([Table 2-2](#)).

A rating system was used to determine the probable effectiveness in achieving the mitigation objectives identified for the stipulations and ROPs. Effectiveness ratings are somewhat subjective and may be based on professional judgment on how effective the measure would be at mitigating and/or compensating for the impact. Goals for each mitigation measure have been established. Effectiveness is measured against how well the stipulation or ROP meets its stated goal. These ratings are used in [Table 2-3](#) and as follows:

- High – achieves the desired results more than 90 percent of the time, and this is documented or obviously so;
- Moderate – between 75-90 percent effective, or logic dictates that is more than 90 percent effective, but no documentation exists; and
- Low – effectiveness is unknown or unverified, or is estimated to be effective less than 75 percent of the time.

The reader of this Amended IAP/EIS should keep in mind that stipulations and ROPs were often developed to address a specific, or narrow range of, resource concern(s). Thus, the effectiveness statement for each stipulation and ROP may only address one or a few resources.

## **2.9 Comparison of the Consequences of Each Alternative**

[Table 2-3](#), which follows [Table 2-2](#), summarizes the likely effects of oil and gas exploration and development on resources in the Planning Area for each alternative. Information contained in these tables is discussed in more detail in [Chapter 4](#) (Environmental Consequences).

## **2.10 Impacts to Current and Future Lease Holders from Revisions to 1998 Northeast IAP/EIS ROD**

No changes to the stipulations attached to the existing leases would occur until after consideration in the full NEPA review for the amendment and renegotiations with leaseholders. Although lease stipulations may be revised to include more performance-based, rather than prescriptive-based, stipulations as a result of the NEPA process, it is not anticipated that the revisions would create substantially different impacts from what might occur given the current stipulations. In addition, this amendment analyzes the effects of prescriptive-based mitigation under the No Action Alternative, and effects that would occur under three action alternatives where performance-based stipulations and ROPs would apply. The analyses associated with the action alternatives provides the decision-maker with an assessment of the impacts that would occur if stipulations in existing leases were changed from prescriptive- to performance-based stipulations and ROPs.









**Table 2-2. Comparison of the Effectiveness of Stipulations from the 1998 Record of Decision for the Northeast National Petroleum Reserve - Alaska Integrated Activity Plan and the Amended Northeast National Petroleum Reserve - Alaska Integrated Activity Plan's Alternatives B, C, and the final Preferred Alternative D.**

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Preferred Alternative D  |
|---|---|---|
| Note: The performance based stipulations and required operating procedures would offer greater flexibility to adapt requirements/standards to specific situations and to modify the requirements/standards if they prove ineffective. Prescriptive based mitigation often attempts to define a requirement with a "one size fits all" approach that does not allow adjustments when site and project-specific information. Accordingly, while we have in some cases found a performance-based stipulation or ROP to be less effective than the corresponding prescriptive stipulation in Alternative A, this lesser effectiveness may be compensated for by the additional flexibility in the performance-based ROPs.   |   |   |
| WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY   |   |   |
| <p>1. To prevent and minimize present and future pollution, management decisions affecting waste generation shall be addressed in the following order of priority:</p> <ul style="list-style-type: none"> <li>-Prevention and Reduction</li> <li>-Recycling</li> <li>-Treatment</li> <li>-Disposal</li> </ul> <p>a. Lessees shall prepare a waste-management plan approved by the AO, in consultation with appropriate federal, state, and NSB regulatory and resource agencies, to achieve specific waste-reduction and prevention goals for all phases of exploration and development (including activities conducted by contractors). The plan shall identify all waste streams that will be produced during each operation by type, volume, and toxicity and the method of disposal. For each waste stream, the lessee/operator shall describe what actions will be taken to minimize the volume. The plan should include activities that will integrate pollution prevention concepts into purchasing, inventory, shipping/receiving, operations maintenance, training, accounting, and design. The goal of the plan shall be continuous environmental improvement and achievement of reduction goals developed through the planning process. Lessees shall develop schedules for implementation and review to meet reduction and prevention goals, designate accountable personnel to carry out action items,</p> | <p><b>A-2 Required Operating Procedure</b><br/> <b>Objective:</b> Minimize impacts on the environment from non-hazardous waste generation. Encourage continuous environmental improvement. Protect the health and safety of oil field workers and the general public. Avoid human-caused changes in predator populations.<br/> <b>Requirement/Standard:</b> Lessees/permittees shall prepare and implement a comprehensive waste management plan for all phases of exploration and development, including seismic activities. The plan shall be submitted to the AO for approval, in consultation with federal, state, and NSB regulatory and resource agencies, as appropriate (based on agency legal authority and jurisdictional responsibility), as part of a plan of operations or other similar permit application. Management decisions affecting waste generation shall be addressed in the following order of priority: 1) Prevention and reduction, 2) recycling, 3) treatment, and 4) disposal. The plan shall consider and take into account the following requirements:</p> <ul style="list-style-type: none"> <li>a. <u>Methods to avoid attracting wildlife to food and garbage.</u> All feasible precautions shall be taken to avoid attracting wildlife to food and garbage. (A list of approved precautions, specific to the type of permitted use, can be obtained from the AO.)</li> <li>b. <u>Disposal of putrescible waste.</u> Requirements prohibit the burial of garbage. Lessees and permitted users shall have a written procedure to ensure that the handling and disposal of putrescible waste will be accomplished in a manner that prevents the attraction of wildlife. All putrescible waste shall be incinerated,</li> </ul> | <p><b>A-2 Required Operating Procedure</b><br/> <b>Objective:</b> Minimize impacts on the environment from non-hazardous waste generation. Encourage continuous environmental improvement. Protect the health and safety of oil field workers and the general public. Avoid human-caused changes in predator populations.<br/> <b>Requirement/Standard:</b> Lessees/permittees shall prepare and implement a comprehensive waste management plan for all phases of exploration and development, including seismic activities. The plan shall be submitted to the AO for approval, in consultation with federal, state, and NSB regulatory and resource agencies, as appropriate (based on agency legal authority and jurisdictional responsibility), as part of a plan of operations or other similar permit application. Management decisions affecting waste generation shall be addressed in the following order of priority: 1) Prevention and reduction, 2) recycling, 3) treatment, and 4) disposal. The plan shall consider and take into account the following requirements:</p> <ul style="list-style-type: none"> <li>a. <u>Methods to avoid attracting wildlife to food and garbage.</u> All feasible precautions shall be taken to avoid attracting wildlife to food and garbage. (A list of approved precautions, specific to the type of permitted use, can be obtained from the AO.)</li> <li>b. <u>Disposal of putrescible waste.</u> Requirements prohibit the burial of garbage. Lessees and permitted users shall have a written procedure to ensure that the handling and disposal of putrescible waste will be accomplished in a manner that prevents the attraction of wildlife. All putrescible waste shall be incinerated,</li> </ul> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>   |  |  |
| <p>and specify budget line items for plan elements. Lessees shall provide the AO with an annual waste-management report.</p> <p>b. Lessees shall implement a hazardous-materials tracking system to ensure proper use, storage, and management of materials being used within industrial processes. The use of chlorinated solvents is prohibited.</p> <p>c. Lessees shall conduct annual environmental compliance audits.</p> | <p>backhauled, or composted in a manner approved by the AO. All solid waste, including incinerator ash, shall be disposed of in an approved waste-disposal facility in accordance with USEPA and ADEC regulations and procedures. The burial of human waste is prohibited except as authorized by the AO.</p> <p>c. <u>Disposal of pumpable waste products.</u> Except as specifically provided, the BLM requires that all pumpable solid, liquid, and sludge waste be disposed of by injection in accordance with USEPA, ADEC, and the Alaska Oil and Gas Conservation Commission regulations and procedures. On-pad temporary muds and cuttings storage, as approved by ADEC, will be allowed as necessary to facilitate annular injection and/or backhaul operations.</p> <p>d. <u>Disposal of wastewater and domestic wastewater.</u> The BLM prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the NPDES or state permit.</p> <p><b>A-3 Required Operating Procedure</b><br/> <u>Objective:</u> Minimize pollution through effective hazardous-materials contingency planning.<br/> <u>Requirement/Standard:</u> For oil- and gas-related activities, a Hazardous Materials Emergency Contingency Plan shall be prepared and implemented before transportation, storage, or use of fuel or hazardous substances. The plan shall include a set of procedures to ensure prompt response, notification, and cleanup in the event of a hazardous substance spill or threat of a release. Procedures applicable to fuel and hazardous substances handling (associated with transportation vehicles) may consist of Best Management Practices (BMPs) if approved by the AO. The plan shall include a list of resources available for response (e.g., heavy-equipment</p> | <p>backhauled, or composted in a manner approved by the AO. All solid waste, including incinerator ash, shall be disposed of in an approved waste-disposal facility in accordance with USEPA and ADEC regulations and procedures. The burial of human waste is prohibited except as authorized by the AO.</p> <p>c. <u>Disposal of pumpable waste products.</u> Except as specifically provided, the BLM requires that all pumpable solid, liquid, and sludge waste be disposed of by injection in accordance with USEPA, ADEC, and the Alaska Oil and Gas Conservation Commission regulations and procedures. On-pad temporary muds and cuttings storage, as approved by ADEC, will be allowed as necessary to facilitate annular injection and/or backhaul operations.</p> <p>d. <u>Disposal of wastewater and domestic wastewater.</u> The BLM prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the NPDES or state permit.</p> <p><b>A-3 Required Operating Procedure</b><br/> <u>Objective:</u> Minimize pollution through effective hazardous-materials contingency planning.<br/> <u>Requirement/Standard:</u> For oil- and gas-related activities, a Hazardous Materials Emergency Contingency Plan shall be prepared and implemented before transportation, storage, or use of fuel or hazardous substances. The plan shall include a set of procedures to ensure prompt response, notification, and cleanup in the event of a hazardous substance spill or threat of a release. Procedures applicable to fuel and hazardous substances handling (associated with transportation vehicles) may consist of Best Management Practices (BMPs) if approved by the AO. The plan shall include a list of resources available for response (e.g., heavy-equipment</p> |

**Table 2-2. Continued.**

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>  |  |  |
| <p>operators, spill-cleanup materials or companies), and names and phone numbers of federal, state, and NSB contacts. Other federal and state regulations may apply and require additional planning requirements. All staff shall be instructed regarding these procedures.</p> <p><i>Alternative A - Stipulation 1 and Alternatives B, C, and D - ROP A-2*</i> provides essentially the same benefit in effectively reducing impacts to <b>soil, water resources, and water quality, wetlands, vegetation, freshwater and marine fishes, birds, terrestrial mammals (including grizzly bears, arctic foxes) and endangered and threatened species, recreation/wilderness and users, wild and scenic river values, and visual resources</b> from solid and hazardous waste products by minimizing impacts on the environment from non-hazardous waste generation; by encouraging continuous environmental improvements; by protecting the health and safety of oil field workers and the general public; and avoiding human-caused changes in predator populations. Under all circumstances the lessee/permittee is required to prepare and implement a comprehensive waste management plan for all phases of exploration a development, including seismic activities; management decisions affecting waste general would be addressed in the following order of priority: 1) Prevention and reduction, 2) recycling, 3) treatment, and 4) disposal. Mitigations for all alternatives require containment of fuel, petroleum products, and liquid chemicals, reducing the likelihood of spills entering a lake or river; prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the NPDES or state permit. This reduces the potential of harming or killing forage fish, which would benefit the breeding success of fish-eating birds such as loons, mergansers, and terns, and threatened and endangered eiders; limits the availability of food and garbage and the discharge of solid and hazardous waste products that could attract predators or harm habitat; limits reductions in water quality, loss of critical winter habitat and declines in outstandingly remarkable values for fish, wildlife, and subsistence use; prohibits the disposal of solid and hazardous waste products that would impact the visual characteristics near oil and gas sites . The protection to subsistence resources is beneficial to the subsistence hunting and gathering (Moderate/High).</p> <p><i>Alternative A - Stipulation 1 and Alternative B, C, and D - ROP A-3*</i> would effectively provide protection from impacts to <b>soil, paleontological and cultural resources, water resources and water quality, vegetation, freshwater and marine fish, birds, terrestrial mammals, endangered and threatened species, subsistence-harvest patterns, and wild and scenic river value</b> from hazardous materials through the development of a Hazardous Materials Emergency Contingency Plan (HMECP). The HMECP will be effective in protecting the above listed habitats and/or species by addressing and implementing plans for fuel and chemical storage, fuel handling, spill prevention and cleanup. The HMECP will 1) reduce the acreage of impacts to vegetation by reducing the probability of oil spills reaching the tundra or spreading further if they reach the tundra by providing for better clean-up of spills; 2) will be effective in providing increased protection to freshwater and marine fish and associated habitat during fuel use, handling and storage; 3) would effectively reduce contamination risk to birds, terrestrial mammals, endangered and threatened species from accidental spills of fuel or other hazardous substances by preventing their entry into water bodies and wetlands; 4) would be beneficial in effectively providing protection from potential impacts to subsistence harvest patterns by assuring prompt response to spills which would minimize impacts to birds, terrestrial and marine mammals, and fish and fish habitat (Moderate/High).</p> |  |  |
| <p>2. Attracting wildlife to food and garbage is prohibited. All feasible precautions shall be taken to avoid attracting wildlife to food and garbage. A current list of approved precautions, specific to type of permitted use, can be obtained from the AO. Lessees and permitted users shall have a written procedure to ensure that the handling and disposal of putrescible waste will be accomplished in a manner to prevent the attraction of wildlife.</p>   | <p><b>A-2a, b Required Operating Procedure</b></p> <p>a. <u>Methods to avoid attracting wildlife to food and garbage.</u> All feasible precautions shall be taken to avoid attracting wildlife to food and garbage. (A list of approved precautions, specific to the type of permitted use, can be obtained from the AO.)</p> <p>b. <u>Disposal of putrescible waste.</u> Requirements prohibit the burial of garbage. Lessees and permitted users shall have a written procedure to ensure that the handling and disposal of putrescible waste will be accomplished in a manner that prevents the attraction of wildlife.</p> | <p><b>A-2a, b Required Operating Procedure</b></p> <p>a. <u>Methods to avoid attracting wildlife to food and garbage.</u> All feasible precautions shall be taken to avoid attracting wildlife to food and garbage. (A list of approved precautions, specific to the type of permitted use, can be obtained from the AO.)</p> <p>b. <u>Disposal of putrescible waste.</u> Requirements prohibit the burial of garbage. Lessees and permitted users shall have a written procedure to ensure that the handling and disposal of putrescible waste will be accomplished in a manner that prevents the attraction of wildlife.</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>   |  |  |
|  | All putrescible waste shall be incinerated, backhauled, or composted in a manner approved by the AO. All solid waste, including incinerator ash, shall be disposed of in an approved waste-disposal facility in accordance with USEPA and ADEC regulations and procedures. The burial of human waste is prohibited except as authorized by the AO.   | All putrescible waste shall be incinerated, backhauled, or composted in a manner approved by the AO. All solid waste, including incinerator ash, shall be disposed of in an approved waste-disposal facility in accordance with USEPA and ADEC regulations and procedures. The burial of human waste is prohibited except as authorized by the AO.   |
| 3. Burial of garbage is prohibited. All putrescible waste shall be incinerated or composted through an AO-approved system, unless otherwise authorized by the AO. All solid waste, including incinerator ash, shall be removed from BLM lands and disposed of in an approved waste-disposal facility in accordance with USEPA and ADEC regulations and procedures. Burial of human waste is prohibited, except as authorized by the AO.  | <b>A-2b Required Operating Procedures</b><br>b. <u>Disposal of putrescible waste.</u> Requirements prohibit the burial of garbage. Lessees and permitted users shall have a written procedure to ensure that the handling and disposal of putrescible waste will be accomplished in a manner that prevents the attraction of wildlife. All putrescible waste shall be incinerated, backhauled, or composted in a manner approved by the AO. All solid waste, including incinerator ash, shall be disposed of in an approved waste-disposal facility in accordance with USEPA and ADEC regulations and procedures. The burial of human waste is prohibited, except as authorized by the AO. | <b>A-2b Required Operating Procedures</b><br>b. <u>Disposal of putrescible waste.</u> Requirements prohibit the burial of garbage. Lessees and permitted users shall have a written procedure to ensure that the handling and disposal of putrescible waste will be accomplished in a manner that prevents the attraction of wildlife. All putrescible waste shall be incinerated, backhauled, or composted in a manner approved by the AO. All solid waste, including incinerator ash, shall be disposed of in an approved waste-disposal facility in accordance with USEPA and ADEC regulations and procedures. The burial of human waste is prohibited, except as authorized by the AO. |
| <i>Alternative A - Stipulation 2 and 3 and Alternatives B, C, and D - ROP A-2a and b*</i> provide essentially the same benefit in effectively reducing impacts to <b>water resources, and water quality, wetlands, vegetation, freshwater and marine fishes, birds, terrestrial mammals (including grizzly bears, arctic foxes) and endangered and threatened species, recreation/wilderness and users, wild and scenic river values, and visual resources</b> from solid and hazardous waste products by minimizing impacts on the environment from non-hazardous waste generation; by encouraging continuous environmental improvements; by regulating garbage disposal; by protecting the health and safety of oil field workers and the general public requiring all putrescible waste be incinerated, backhauled, or composted in a manner approved by the AO; and avoiding human-caused changes in predator populations. Under all circumstances the lessee/permittee is required to prepare and implement a comprehensive waste management plan for all phases of exploration a development, including seismic activities; management decisions affecting waste general would be addressed in the following order of priority: 1) Prevention and reduction, 2) recycling, 3) treatment, and 4) disposal. Mitigations for all alternatives require containment of fuel, petroleum products, and liquid chemicals, reducing the likelihood of spills entering a lake or river; prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the NPDES or state permit. This reduces the potential of harming or killing forage fish, which would benefit the breeding success of fish-eating birds such as loons, mergansers, and terns, and threatened and endangered eiders; limits the availability of food and garbage and the discharge of solid and hazardous waste products that could attract predators or harm habitat; limits reductions in water quality, loss of critical winter habitat and declines in outstandingly remarkable values for fish, wildlife, and subsistence use; prohibits the disposal of solid and hazardous waste products that would impact the visual characteristics near oil and gas sites. The protection to subsistence resources is beneficial to the subsistence hunting and gathering (Moderate/High). |  |  |
| 4. Except as specifically provided, all pumpable solid, liquid, and sludge waste shall be disposed of by   | <b>A-2c Required Operating Procedure</b><br>c. <u>Disposal of pumpable waste products.</u> Except  | <b>A-2c Required Operating Procedure</b><br>c. <u>Disposal of pumpable waste products.</u> Except  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
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| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>  |  |  |
| <p>injection, in accordance with USEPA, ADEC, and the Alaska Oil and Gas Conservation Commission regulations and procedures. On-pad temporary muds and cuttings storage will be allowed as necessary to facilitate annular injection and/or backhaul operations.</p>  | <p>as specifically provided, the BLM requires that all pumpable solid, liquid, and sludge waste be disposed of by injection in accordance with USEPA, ADEC, and the Alaska Oil and Gas Conservation Commission regulations and procedures. On-pad temporary muds and cuttings storage, as approved by ADEC, will be allowed as necessary to facilitate annular injection and/or backhaul operations.</p>   | <p>as specifically provided, the BLM requires that all pumpable solid, liquid, and sludge waste be disposed of by injection in accordance with USEPA, ADEC, and the Alaska Oil and Gas Conservation Commission regulations and procedures. On-pad temporary muds and cuttings storage, as approved by ADEC, will be allowed as necessary to facilitate annular injection and/or backhaul operations.</p>   |
| <p>5. Wastewater disposal:</p> <p>a. Unless authorized by the National Pollution Discharge Elimination System (NPDES) or state permit, disposal of domestic wastewater into bodies of freshwater, including wetlands, is prohibited.</p> <p>b. Surface discharge of reserve-pit fluids is prohibited unless authorized by applicable NPDES, ADEC, and NSB permits and approved by the AO.</p> <p>c. Disposal of produced waters in upland areas, including wetlands, will be by subsurface-disposal techniques. The AO, in consultation with the ADEC and USEPA, may permit alternate disposal methods, if the lessee demonstrates that subsurface disposal is not feasible or prudent.</p> | <p><b>A-2d Required Operating Procedure</b></p> <p>d. <u>Disposal of wastewater and domestic wastewater.</u> The BLM prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the NPDES or state permit.</p> <p><b>A-6 Required Operating Procedure</b><br/><u>Objective:</u> Minimize the impact on fish, wildlife, and the environment from contaminants associated with the exploratory drilling process.<br/><u>Requirement/Standard:</u> Surface discharge of reserve-pit fluids is prohibited unless authorized by applicable NPDES, ADEC, and NSB permits (as appropriate) and approved by the AO.</p> <p><b>A-7a Required Operating Procedure</b><br/><u>Objective:</u> Minimize the impacts to the environment of disposal of produced fluids recovered during the development phase on fish, wildlife, and the environment.<br/><u>Requirement/Standard:</u> Procedures for the disposal of produced fluids shall meet the following requirements:</p> <p>a. In upland areas, including wetlands, disposal will be by subsurface-disposal techniques. The AO may permit alternate disposal methods if the lessee demonstrates that subsurface disposal is not feasible or prudent and the alternative method will not result in adverse environmental effects.</p> | <p><b>A-2d Required Operating Procedure</b></p> <p>d. <u>Disposal of wastewater and domestic wastewater.</u> The BLM prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the NPDES or state permit.</p> <p><b>A-6 Required Operating Procedure</b><br/><u>Objective:</u> Minimize the impact on fish, wildlife, and the environment from contaminants associated with the exploratory drilling process.<br/><u>Requirement/Standard:</u> Surface discharge of reserve-pit fluids is prohibited unless authorized by applicable NPDES, ADEC, and NSB permits (as appropriate) and approved by the AO.</p> <p><b>A-7a Required Operating Procedure</b><br/><u>Objective:</u> Minimize the impacts to the environment of disposal of produced fluids recovered during the development phase on fish, wildlife, and the environment.<br/><u>Requirement/Standard:</u> Procedures for the disposal of produced fluids shall meet the following requirements:</p> <p>a. In upland areas, including wetlands, disposal will be by subsurface-disposal techniques. The AO may permit alternate disposal methods if the lessee demonstrates that subsurface disposal is not feasible or prudent and the alternative method will not result in adverse environmental effects.</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>  |  |  |
| <p>d. Discharge of produced waters into open or ice-covered marine waters less than 33 feet (10 meters) in depth is prohibited. The AO, in consultation with ADEC and USEPA, may approve discharges into waters greater than 33 feet (10 meters) in depth based on a case-by-case review of environmental factors and consistency with the conditions of a NPDES permit.</p> <p>e. Alternate disposal methods will require an NPDES permit certified by the State.</p>  | <p><b>A-7b Required Operating Procedure</b></p> <p>b. In marine waters, approval of discharges by the AO will be based on a case-by-case review of environmental factors and consistency with the conditions of an NPDES permit. Discharge of produced fluids will be prohibited at locations where currents and water depths, in combination with other conditions, are not adequate to prevent impacts to known biologically sensitive areas. Alternate disposal methods will require an NPDES permit certified by the state.</p> <p><b>A-2d Required Operating Procedure</b></p> <p>d. <u>Disposal of wastewater and domestic wastewater.</u> The BLM prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the NPDES or state permit.</p> | <p><b>A-7b Required Operating Procedure</b></p> <p>b. In marine waters, approval of discharges by the AO will be based on a case-by-case review of environmental factors and consistency with the conditions of an NPDES permit. Discharge of produced fluids will be prohibited at locations where currents and water depths, in combination with other conditions, are not adequate to prevent impacts to known biologically sensitive areas. Alternate disposal methods will require an NPDES permit certified by the state.</p> <p><b>A-2d Required Operating Procedure</b></p> <p>d. <u>Disposal of wastewater and domestic wastewater.</u> The BLM prohibits wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the NPDES or state permit.</p> |
| <p><i>Alternative A - Stipulation 5 and Alternatives B, C, and D – ROP A-2d, A-6, A-7a and b * would essentially provide the same benefits in reducing impacts to <b>soil, vegetation, wetlands, birds, freshwater, estuarine, and marine water resources and water quality, marine and terrestrial mammals, freshwater and marine fish, endangered and threatened species, subsistence harvest patterns, and wild and scenic rivers</b> by <i>prohibiting</i> wastewater discharges or disposal of domestic wastewater into bodies of fresh, estuarine, and marine water, including wetlands, unless authorized by the NPDES or state permit; <i>prohibiting</i> surface discharge of reserve-pit fluids unless authorized by applicable NPDES, ADEC, and NSB permits (as appropriate) and approved by the AO; by minimizing the impacts to the environment of disposal of produced fluids recovered during the development phase on fish, wildlife, and the environment by requiring that disposal in upland areas, including wetlands, be by subsurface-disposal techniques; <i>prohibiting</i> the discharge of produced fluids at locations where currents and water depths, in combination with other conditions, are not adequate to prevent impacts to known biologically sensitive areas. Alternate disposal methods would require an NPDES permit certified by the state. Mitigations would 1) reduce impacts to wetlands, soil, vegetation, water resources and water quality by regulating solid, liquid, and sludge waste products and discharges and preventing such products from reaching the tundra or spreading further if they did actually reach the tundra; 2) lessen the impacts on birds by preventing wastewater, produced water, and reserve pit fluid discharges from impacting avian habitat; 3) be effective in reducing the potential for wastewater, produced water, and reserve pit fluid to be discharged and potentially impacting marine and terrestrial mammals; 4) lessen impacts to subsistence harvest patterns by providing increased protection for birds and terrestrial mammals; 5) be equally effective in protecting freshwater, estuarine, and marine water resources and water quality by regulating wastewater, produced water, and reserve pit fluid discharges to surface water bodies or marine waters; 6) be equally effective in reducing the likelihood of wastewater, produced water, and reserve pit fluid discharges contaminating environments inhabited by freshwater and marine fish; 7) effectively minimize impacts to endangered and threatened species from wastewater, produced water, and reserve pit fluid discharges into their habitat (Moderate/High).</i></p> |  |  |
| <p>6. Areas of operation shall be left clean of all debris</p>  | <p><b>A-1 Required Operating Procedure</b></p> <p><u>Objective:</u> Protect the health and safety of oil field workers and the general public by avoiding the disposal of solid waste and garbage near areas of human activity.</p>  | <p><b>A-1 Required Operating Procedure</b></p> <p><u>Objective:</u> Protect the health and safety of oil field workers and the general public by avoiding the disposal of solid waste and garbage near areas of human activity.</p>  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
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| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>   |   |   |
|  | <u>Requirement/Standard</u> : Areas of operation shall be left clean of all debris.   | <u>Requirement/Standard</u> : Areas of operation shall be left clean of all debris.   |
| <p><i>Alternative A - Stipulation 6 and Alternatives B, C, and D - ROP A-1</i> * would effectively provide the same benefits in reducing impacts to <b>water resources and water quality, wetlands, birds, freshwater, estuarine, and marine water resources and water quality, terrestrial mammals, freshwater and marine fish, endangered and threatened species, subsistence harvest patterns, wild and scenic rivers, recreation/wilderness, and visual resources</b> by requiring areas of operation be left clean of all debris and avoid the disposal of solid waste and garbage near areas of human activity. All mitigations would 1) protect water resources and water quality by reducing the potential for solid waste and garbage to contaminate surface waters; 2) protect wetlands from degradation from solid waste and garbage; 3) effectively protect birds by reducing the potential for solid waste and garbage to foul avian habitat or be consumed by birds; 4) reduce the potential effects of human refuse on grizzly bears, polar bears, arctic foxes, and other terrestrial mammals; 5) minimize potential inland and marine pollution and effects on freshwater and marine fish in areas where oil exploration and development may occur; 6) be effective in protecting endangered and threatened species by reducing the potential for solid waste and garbage to adversely impact habitat or be consumed by species of concern; 7) be effective in providing increased protection for terrestrial mammals, thus reducing the potential for impacts on subsistence-harvest patterns; 8) be effective in helping to protect the area's recreation/wilderness resources as well as the users; and 9) limit the degradation of visual resources caused by unregulated disposal of garbage (Moderate).</p> |   |   |
| 7. All spills shall be cleaned up immediately and to the satisfaction of the AO and all agencies with regulatory authority over spills, including the USEPA, ADEC, and the U.S. Coast Guard.   | <i>A-3 Required Operating Procedure as in No. 1 above.</i>  | <i>A-3 Required Operating Procedure as in No. 1 above.</i>  |
| Effectiveness of <i>Alternative A Stipulation 7 and Alternatives B, C, and D - ROP-3</i> * shown in No. 1 above.   |   |   |
| 8. Notice of any spill shall be given to the AO as soon as possible. Other federal, state, and NSB entities shall be notified as required by law.  | <p><i>A-3 Required Operating Procedure as in No. 1 above.</i></p> <p><i>A-4f Required Operating Procedure</i><br/> <u>Objective</u>: Minimize the impact of contaminants on fish, wildlife and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.<br/> <u>Requirement/Standard</u>: Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:<br/> f. <u>Notice of Reportable Spills</u>. Notice of any reportable spill (as required by 40 CFR § 300.125 and 18 AAC § 75.300) shall be given to the AO as soon as possible, but no later than 24 hours after occurrence.</p> | <p><i>A-3 Required Operating Procedure as in No. 1 above.</i></p> <p><i>A-4f Required Operating Procedure</i><br/> <u>Objective</u>: Minimize the impact of contaminants on fish, wildlife and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.<br/> <u>Requirement/Standard</u>: Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:<br/> f. <u>Notice of Reportable Spills</u>. Notice of any reportable spill (as required by 40 CFR § 300.125 and 18 AAC § 75.300) shall be given to the AO as soon as possible, but no later than 24 hours after occurrence.</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>  |   |   |
| <p>9. For oil and gas-related activities, a Hazardous-Materials Emergency-Contingency Plan shall be prepared and implemented prior to transportation, storage, or use of fuel. The plan shall include a set of procedures to ensure prompt response, notification, and cleanup in the event of a hazardous substance spill or threat of a release. Procedures applicable to fuel handling (associated with transportation vehicles) may consist of BMPs approved by the AO. The plan shall include a list of resources available for response (e.g., heavy-equipment operators, spill-cleanup materials or companies), and names and phone numbers of federal, state, and NSB contacts. Other federal and state regulations may apply and require additional planning requirements. All staff shall be instructed regarding these procedures.</p> | <p><i>A-3 Required Operating Procedure as in No. 1 above.</i></p>   | <p><i>A-3 Required Operating Procedure as in No. 1 above.</i></p>   |
| Effectiveness of <i>Alternative A - Stipulation 9 and Alternatives B, C, and D - ROP A-3*</i> shown in No. 1 above.   |   |   |
| <p>10. Oil-spill-cleanup materials (absorbents, containment devices, etc.) shall be stored at all fueling points and vehicle-maintenance areas and be carried by field crews on all overland moves, seismic work trains, and similar overland moves by heavy equipment.</p>   | <p><b><i>A-4a Required Operating Procedure</i></b><br/> <b><u>Objective:</u></b> Minimize the impact of contaminants on fish, wildlife and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.<br/> <b><u>Requirement/Standard:</u></b> Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:</p> <p>a. <u>On-site clean-up materials.</u> Sufficient oil-spill-cleanup materials (absorbents, containment devices, etc...) shall be stored at all fueling points and vehicle-maintenance areas and shall be carried by field crews on all overland moves, seismic work trains, and similar overland moves by heavy equipment.</p> | <p><b><i>A-4a Required Operating Procedure</i></b><br/> <b><u>Objective:</u></b> Minimize the impact of contaminants on fish, wildlife and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.<br/> <b><u>Requirement/Standard:</u></b> Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:</p> <p>a. <u>On-site clean-up materials.</u> Sufficient oil-spill-cleanup materials (absorbents, containment devices, etc...) shall be stored at all fueling points and vehicle-maintenance areas and shall be carried by field crews on all overland moves, seismic work trains, and similar overland moves by heavy equipment.</p> |



Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>   |  |  |
| <p><i>Alternative A - Stipulation 10 and Alternatives B, C, and D – ROP A-4a*</i> would effectively provide the same benefits in reducing impacts to <b>soil resources, water resources and water quality, wetlands, birds, marine and freshwater fish and fish habitat, terrestrial mammals, endangered and threatened species, subsistence harvest patterns, wild and scenic rivers, recreation/wilderness, and visual resources</b> by requiring that oil-spill-cleanup materials (absorbents, containment devices, etc.) shall be stored at all fueling points and vehicle-maintenance areas and be carried by field crews on all overland moves, seismic work trains, and similar overland moves by heavy equipment. These mitigations would 1) be effective in preventing fuel or crude oil spills from impacting soil resources; 2) be effective in protecting water resources and water quality by requiring clean-up materials be stored on-site; 3) reduce the impacts to vegetation by reducing the probability of oil spills reaching the tundra or spreading further if they reach the tundra and by providing better clean-up of spills; 4) protect wetlands from degradation by fuel and oil spills and by requiring spill prevention cleanup materials be on-site; 5) reduce contamination risk to birds from accidental spills of fuel or liquid chemicals during oil and gas activities by preventing their entry into water bodies and wetlands through implementation of a comprehensive spill prevention and response contingency plan which includes specifications on cleanup, materials, storage containers, and liner materials; 6) provide increased protection to marine and freshwater fish and fish habitat during fuel use, handling and storage; 7) reduce the contamination risk to grizzly bears, polar bears, arctic foxes, and other terrestrial mammals from fuel or crude oil spills; 8) minimize impacts to endangered and threatened species by reducing the risk of fuel or liquid chemical spills entering into water bodies and wetlands; 9) minimize impacts on subsistence-harvest patterns by reducing the potential for impacts on birds, terrestrial mammals, fish and fish habitat, and marine mammals during fuel use, handling, and storage; 10) limit the impacts that oil and gas exploration and development would have on wild and scenic river values; and 11) limit the degradation of visual resources caused by spills (Moderate).</p> |  |  |
| <p>11. Lessees shall provide refresher spill-response training to NSB and local community spill-response teams on a yearly basis.</p>  | <p><b>OPA 90 and 40 CFR 112</b><br/><b>A-3 Required Operating Procedure as in No. 1 above.</b></p> <p><b>A-4 Required Operating Procedure</b><br/><u>Objective:</u> Minimize the impact of contaminants on fish, wildlife, and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil, and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.</p> <p><u>Requirement/Standard:</u> Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:</p> <ol style="list-style-type: none"> <li><u>On-site Clean-up Materials.</u> Sufficient oil-spill-cleanup materials (absorbents, containment devices, etc...) shall be stored at all fueling points and vehicle-maintenance areas and shall be carried by field crews on all overland moves, seismic work trains, and similar overland moves by heavy equipment.</li> <li><u>Storage Containers.</u> Fuel and other petroleum</li> </ol> | <p><b>OPA 90 and 40 CFR 112</b><br/><b>A-3 Required Operating Procedure as in No. 1 above.</b></p> <p><b>A-4 Required Operating Procedure</b><br/><u>Objective:</u> Minimize the impact of contaminants on fish, wildlife, and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil, and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.</p> <p><u>Requirement/Standard:</u> Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:</p> <ol style="list-style-type: none"> <li><u>On-site Clean-up Materials.</u> Sufficient oil-spill-cleanup materials (absorbents, containment devices, etc...) shall be stored at all fueling points and vehicle-maintenance areas and shall be carried by field crews on all overland moves, seismic work trains, and similar overland moves by heavy equipment.</li> <li><u>Storage Containers.</u> Fuel and other petroleum</li> </ol> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|--|---|---|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>   |   |   |
|  | <p>products and other liquid chemicals shall be stored in proper containers at approved locations. Except during overland moves and seismic operations, fuel, other petroleum products, and other liquid chemicals designated by the AO in excess of 1,320 gallons in storage capacity shall be stored within an impermeable lined and diked area or within approved alternate storage containers, such as over packs, capable of containing 110 percent of the stored volume.</p> <p>c. <u>Liner Materials</u>. Liner material shall be compatible with the stored product and capable of remaining impermeable during typical weather extremes expected throughout the storage period.</p> <p>d. <u>Permanent Fueling Stations</u>. Permanent fueling stations shall be lined or have impermeable protection to prevent fuel migration to the environment from overfills and spills.</p> <p>e. <u>Proper Identification of Containers</u>. All fuel containers, including barrels and propane tanks, shall be marked with the responsible party's name, product type, and year filled or purchased.</p> <p>f. <u>Notice of Reportable Spills</u>. Notice of any reportable spill (as required by 40 CFR § 300.125 and 18 AAC § 75.300) shall be given to the AO as soon as possible, but no later than 24 hours after occurrence.</p> <p>g. <u>Identification of Oil Pans ("duck ponds")</u>. All oil pans shall be marked with the responsible party's name.</p> <p>h. <u>OSRP Training</u>. Will consider and implement facility response training and drills/exercises per 40 CFR § 112 (Oil Pollution Act).</p> | <p>products and other liquid chemicals shall be stored in proper containers at approved locations. Except during overland moves and seismic operations, fuel, other petroleum products, and other liquid chemicals designated by the AO in excess of 1,320 gallons in storage capacity shall be stored within an impermeable lined and diked area or within approved alternate storage containers, such as over packs, capable of containing 110 percent of the stored volume.</p> <p>c. <u>Liner Materials</u>. Liner material shall be compatible with the stored product and capable of remaining impermeable during typical weather extremes expected throughout the storage period.</p> <p>d. <u>Permanent Fueling Stations</u>. Permanent fueling stations shall be lined or have impermeable protection to prevent fuel migration to the environment from overfills and spills.</p> <p>e. <u>Proper Identification of Containers</u>. All fuel containers, including barrels and propane tanks, shall be marked with the responsible party's name, product type, and year filled or purchased.</p> <p>f. <u>Notice of Reportable Spills</u>. Notice of any reportable spill (as required by 40 CFR § 300.125 and 18 AAC § 75.300) shall be given to the AO as soon as possible, but no later than 24 hours after occurrence.</p> <p>g. <u>Identification of Oil Pans ("duck ponds")</u>. All oil pans shall be marked with the responsible party's name.</p> <p>h. <u>OSRP Training</u>. Will consider and implement facility response training and drills/exercises per 40 CFR § 112 (Oil Pollution Act).</p> |
| <p><i>Alternative A - Stipulation 11 and Alternatives B, C, and D - OPA 90 and Federal Regulations at 40 CFR 112 would essentially provide equal benefit in minimizing potential impacts to <b>water quality and water resources, wetlands, vegetation, birds, mammals, and subsistence</b> from oil spills by requiring training on oil spill prevention and response.</i></p> <p><i>Effectiveness of Alternative A - Stipulation 11 and Alternatives B, C, and D - ROP A-3* as in No. 1 above.</i></p> |   |   |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C       | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action                   |
|--|--|--|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>   |  |  |
| <p><i>Alternative A – Stipulation 11 and Alternatives B, C, and D – ROP A-4*</i> would essentially all be effective in helping to prevent large fuel or crude oil spills, and consequently reduce the potential for impacts to the various resources mentioned below because mitigations under all alternatives call for some level of spill response training. Under <i>Alternatives B, C, and D</i>, the requirements of 40 CFR § 112 must be met - spill response training requirements fall under the enforcement authority of the Environmental Protection Agency 40 CFR § 112. 40 CFR § 112.21(a) calls for the owner and operator of any facility to prepare a facility response plan, and develop and implement a facility response training program and a drill/exercise program that satisfy the requirements of this section.</p> <p>Under all <i>Alternatives</i>, spill response training requirements would educate and train participants in the specific area of oil spill response and clean-up techniques, skills and knowledge associated with the ability to perform spill response duties. Mitigations under all alternatives: would be equally effective in helping to prevent large fuel or crude oil spills, and consequently reduce the potential for impacts to <b>soil resources</b> from spill cleanup (Moderate); effectively help to prevent large fuel or crude oil spills, and consequently reduce the potential for impacts to <b>paleontological and cultural resources</b> from spill cleanup (Moderate); be effective in protecting <b>water resources and water quality</b> by regulating fuel and chemical storage, fuel handling, and developing and implanting spill prevention and cleanup plans (Moderate); effectively reduce the impacts to <b>vegetation</b> by decreasing the probability of oil spills reaching the tundra or spreading further if they reach the tundra and by providing better clean-up of spills (Moderate); effectively protect <b>wetlands and freshwater and marine fish and fish habitat</b> by regulating fuel and chemical storage, fuel handling and developing and implanting spill prevention and cleanup plans (Moderate); be beneficial to <b>birds</b> by reducing contamination risk from accidental spills of fuel or liquid chemicals entering into water bodies and wetlands through implementation of a comprehensive spill prevention and response contingency plan, which would also include specifications on cleanup, materials, storage containers, and liner materials (Moderate); help protect grizzly bears, arctic foxes, and other terrestrial mammals by reducing the potential effects of spills on this animals and their habitat (Moderate); minimize impacts to <b>endangered and threatened species</b> by preventing entry of fuel or liquid chemicals into water bodies and wetlands, thus reducing contamination risk to eiders and whales from accidental spills of these substances (Moderate); be effective in reducing impacts on <b>subsistence-harvest patterns</b> by reducing the potential for impacts on birds, terrestrial mammals, fish and fish habitat, and marine mammals during fuel use, handling, and storage (Moderate); increase the protection of <b>wilderness and recreation resources</b>. <i>ROP A-4</i> would help reduce, if not eliminate, fuel spills in pristine areas (Moderate); would effectively limit the impacts that oil and gas exploration and development will have on <b>wild and scenic river</b> values and limit the degradation of <b>visual resources</b> caused by spills (Moderate).</p> |  |  |
| 12. Lessees shall plan and conduct a major spill-response field-deployment drill annually.   | <p><i>A-3 Required Operating Procedure as in No. 1 above.</i></p> <p><i>A-4 Required Operating Procedure as in No. 11 above.</i></p> | <p><i>A-3 Required Operating Procedure as in No. 1 above.</i></p> <p><i>A-4 Required Operating Procedure as in No. 11 above.</i></p> |
| <p><i>Alternative A - Stipulation 12 and Alternatives B, C, and D - OPA 90 and Federal Regulations at 40 CFR 112</i> would essentially provide equal benefit in minimizing potential impacts to <b>water quality and water resources, wetlands, vegetation, birds, mammals, and subsistence</b> by requiring field deployment drills to ensure prompt and adequate response to oil spills.</p> <p>Effectiveness of <i>Alternative A - Stipulation 12 and Alternatives B, C, and D - ROP A-3*</i> shown in No. 1 above.</p> <p>Effectiveness of <i>Alternative A - Stipulation 12 and Alternatives B, C, and D - ROP A-4*</i> shown in No. 11 above.</p>  |  |  |
| 13. Prior to production and as required by law, lessees shall develop spill prevention and response contingency plans and participate in development and maintenance of the North Slope Subarea Contingency Plan for Oil and Hazardous Substances Discharges/Releases for the National Petroleum Reserve - Alaska operating area. Planning shall include development and funding of detailed (e.g., 1:26,000 scale) environmental sensitivity index maps for the lessee's operating area and areas outside the lessee's operating area that could be affected by their activities. (The specific area to be mapped shall be  | <p><i>A-3 Required Operating Procedure as in No. 1 above.</i></p> <p><i>A-4 Required Operating Procedure as in No. 11 above.</i></p> | <p><i>A-3 Required Operating Procedure as in No. 1 above.</i></p> <p><i>A-4 Required Operating Procedure as in No. 11 above.</i></p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>  |   |   |
| defined in the lease agreement and approved by the AO in consultation with appropriate resource agencies). Maps shall be completed in paper copy and geographic information system format in conformance with the latest version of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration's Environmental Sensitivity Index Guidelines. Draft and final products shall be peer reviewed and approved by the AO in consultation with appropriate federal, state, and NSB resource and regulatory agencies.  |   |   |
| Effectiveness of <i>Alternative A - Stipulation 13 and Alternatives B, C, and D - ROP A-3*</i> shown in No. 1 above.<br>Effectiveness of <i>Alternative A - Stipulation 13 and Alternatives B, C, and D - ROP A-4*</i> shown in No. 11 above.   |   |   |
| 14. Except during overland moves and seismic operations (see <i>Stipulation 24m</i> ), fuel, other petroleum products, and other liquid chemicals designated by the AO, whether in excess of 660 gallons in a single tank or in excess of 1,320 gallons in multiple containers, shall be stored within an impermeable lined and diked area capable of containing 110 percent of the stored volume. The liner material shall be compatible with the stored product and capable of remaining impermeable during typical weather extremes expected throughout the storage period. Permanent fueling stations shall be lined or have impermeable protection to prevent fuel migration to the environment due to overfills and spills. The storage area shall be located at least 500 feet from any water body with the exception of small caches (up to 210 gallons) for motor boats, float planes, and ski planes. | <b><i>A-4b, c, d Required Operating Procedures</i></b><br><b><u>Objective:</u></b> Minimize the impact of contaminants on fish, wildlife, and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil, and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.<br><b><u>Requirement/Standard:</u></b> Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:<br>b. <b><u>Storage Containers.</u></b> Fuel and other petroleum products and other liquid chemicals shall be stored in proper containers at approved locations. Except during overland moves and seismic operations, fuel, other petroleum products, and other liquid chemicals designated by the AO in excess of 1,320 gallons in storage capacity shall be stored within an impermeable lined and diked area or within approved alternate storage containers such as over packs, capable of containing 110 percent of the stored volume.<br>c. <b><u>Liner Materials.</u></b> Liner material shall be | <b><i>A-4b, c, d Required Operating Procedures</i></b><br><b><u>Objective:</u></b> Minimize the impact of contaminants on fish, wildlife, and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil, and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.<br><b><u>Requirement/Standard:</u></b> Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:<br>b. <b><u>Storage Containers.</u></b> Fuel and other petroleum products and other liquid chemicals shall be stored in proper containers at approved locations. Except during overland moves and seismic operations, fuel, other petroleum products, and other liquid chemicals designated by the AO in excess of 1,320 gallons in storage capacity shall be stored within an impermeable lined and diked area or within approved alternate storage containers such as over packs, capable of containing 110 percent of the stored volume.<br>c. <b><u>Liner Materials.</u></b> Liner material shall be |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>   |  |  |
|  | <p>compatible with the stored product and capable of remaining impermeable during typical weather extremes expected throughout the storage period.</p> <p>d. <u>Permanent Fueling Stations</u>. Permanent fueling stations shall be lined or have impermeable protection to prevent fuel migration to the environment from overfills and spills.</p> <p><b>A-5 Required Operating Procedure</b><br/> <u>Objective</u>: Minimize the impact of contaminants from refueling operations on fish, wildlife and the environment.<br/> <u>Requirement/Standard</u>: Refueling of equipment within 500 feet of the active flood plain of any fish-bearing water body and 100 feet of non-fish-bearing water bodies is prohibited. Small caches (up to 210 gallons) for motorboats, float planes, ski planes, and small equipment, e.g. portable generators and water pumps, will be permitted. The AO may allow storage and operations at areas closer than the stated distances if properly designed to account for local hydrologic conditions.</p> | <p>compatible with the stored product and capable of remaining impermeable during typical weather extremes expected throughout the storage period.</p> <p>d. <u>Permanent Fueling Stations</u>. Permanent fueling stations shall be lined or have impermeable protection to prevent fuel migration to the environment from overfills and spills.</p> <p><b>A-5 Required Operating Procedure</b><br/> <u>Objective</u>: Minimize the impact of contaminants from refueling operations on fish, wildlife and the environment.<br/> <u>Requirement/Standard</u>: Refueling of equipment within 500 feet of the active flood plain of any fish-bearing water body and 100 feet of non-fish-bearing water bodies is prohibited. Small caches (up to 210 gallons) for motorboats, float planes, ski planes, and small equipment, e.g. portable generators and water pumps, will be permitted. The AO may allow storage and operations at areas closer than the stated distances if properly designed to account for local hydrologic conditions.</p> |
| <p><i>Alternative A - Stipulation 14 and Alternatives B, C, and D - ROP A-4 b, c, and d*</i> would be equally effective in protecting <b>soil resources, paleontological and cultural resources, water resources and water quality, wetlands, vegetation, freshwater and marine fish and fish habitat, birds, terrestrial mammals, endangered and threatened species, subsistence-harvest patterns, wilderness and recreation resources, and wild and scenic river</b> values by requiring lessees/permittees to develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act) before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations. The plan shall take into account specifications for storage containers, liner materials and permanent fueling stations. These mitigations would 1) effectively protect soil resources, paleontological and cultural resources, and water resources and water quality by regulating fuel and chemical storage, fuel handling, spill prevention, and cleanup plans; 2) reduce the impacts to wetlands by reducing the probability of oil spills reaching wetlands; 3) reduce the impacts to wetlands by reducing the probability of oil spills reaching wetlands; 4) reduce the impacts to vegetation by reducing the probability of oil spills reaching the tundra or spreading further if they reach the tundra and by providing better clean-up of spills; 5) provide increased protection to freshwater and marine fish and fish habitat during fuel use, handling, and storage; 6) reduce contamination risk to birds from accidental spills by preventing spills from entering into water bodies and wetlands through implementation of a comprehensive spill prevention and response contingency plan which includes specifications on cleanup, materials, storage containers, and liner materials; 7) reduce the potential effects of spills on grizzly bears, arctic foxes, and other terrestrial mammals; 8) reduce impacts to endangered and threatened species by preventing entry of fuel or liquid chemicals into water bodies and wetlands, thus reducing contamination risk to eiders from accidental spills of these substances; 9) reduce impacts on subsistence-harvest patterns by reducing the potential for impacts on birds, terrestrial mammals, fish and fish habitat, and marine mammals during fuel use, handling, and storage; 10) increase the protection of wilderness and recreation resources. This ROP would help reduce, if not eliminate, fuel spills in pristine areas; and 11) limit the impacts that oil and gas exploration and development will have on wild and scenic river values (Moderate).</p> <p><i>Alternative A - Stipulation 14</i> would be somewhat more effective than <i>Alternatives B, C, and D - ROP A-5*</i> in protecting <b>water resources and water quality, wetlands, freshwater and marine fish and fish habitat, and wild and scenic river values</b> because refueling activities would be prohibited within 500 feet of both fish- and non-fish-bearing waters under <i>Stipulation 14</i>; <i>ROP A-5</i> would allow refueling operations within 100 feet of non-fish-bearing waters (Moderate).</p> <p><i>Alternative A - Stipulation 14 and Alternatives B, C, and D - ROP A-5*</i> provide essentially the same level of protection to 1) <b>vegetation</b> by reducing the probability of oil spills</p> |  |  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>  |  |  |
| reaching the tundra or spreading further if they reach the tundra and by providing better clean-up of spills; 2) <b>birds</b> by prohibiting the refueling of equipment within 500 feet of the active floodplain of fish-bearing and 100 feet of the active floodplain of non-fish-bearing water bodies, thus reducing the potential for spilled fuel to enter water bodies where water birds or their prey are found; 3) grizzly bears, arctic foxes, and other <b>terrestrial mammals</b> by reducing the potential effects of fuel spills; 4) <b>endangered and threatened species</b> by preventing spilled fuel from reaching water bodies where eiders could become contaminated; and 5) <b>subsistence-harvest patterns</b> by providing greater protection for terrestrial mammals, fish and fish habitat, and birds during fuel use, handling, near rivers and fish bearing lakes (Moderate).  |  |  |
| 15. Fuels shall not be stored on the active floodplain of any water body. Although fuels may be off-loaded from aircraft on ice, fuels shall not be stored on lake or river ice.  | <b>A-5 Required Operating Procedure</b><br><u>Objective:</u> Minimize the impact of contaminants from refueling operations on fish, wildlife and the environment.<br><u>Requirement/Standard:</u> Refueling of equipment within 500 feet of the active flood plain of any fish-bearing water body and 100 feet of non-fish-bearing water bodies is prohibited. Small caches (up to 210 gallons) for motorboats, float planes, ski planes, and small equipment, e.g. portable generators and water pumps, will be permitted. The AO may allow storage and operations at areas closer than the stated distances if properly designed to account for local hydrologic conditions. | <b>A-5 Required Operating Procedure</b><br><u>Objective:</u> Minimize the impact of contaminants from refueling operations on fish, wildlife and the environment.<br><u>Requirement/Standard:</u> Refueling of equipment within 500 feet of the active flood plain of any fish-bearing water body and 100 feet of non-fish-bearing water bodies is prohibited. Small caches (up to 210 gallons) for motorboats, float planes, ski planes, and small equipment, e.g. portable generators and water pumps, will be permitted. The AO may allow storage and operations at areas closer than the stated distances if properly designed to account for local hydrologic conditions. |
| <i>Alternative A - Stipulation 15 and Alternatives B, C, and D - ROP A-5*</i> would be equally effective in protecting <b>water resources and water quality</b> by prohibiting fuel storage and refueling operations in the active floodplain; would not reduce the acreage of <b>vegetation</b> impacted by an action, but would be equally effective in shifting the impacts from more valuable wetland or riparian vegetation types to habitats perceived as lesser in value; would be equally effective in reducing the loss of <b>wetland habitat</b> by restricting development of permanent oil and gas facilities within 500 feet of fish-bearing water bodies or 100 feet of non fish-bearing water bodies; would be equally beneficial to <b>freshwater fish habitat and fish</b> by reducing the likelihood of a spill occurring in habitat used by fish; would be equally effective in reducing the potential impacts to <b>birds</b> by prohibiting the refueling of equipment within 500 feet of the active floodplain of fish-bearing and 100 feet of the active floodplain of non-fish-bearing water bodies, thus reducing the potential for spilled fuel to enter water bodies where water birds or their prey are found; would be equally effective in reducing impacts to <b>endangered and threatened species</b> by reducing the potential for a fuel spill to impact wetland habitat ;would be equally effective in reducing impacts on <b>subsistence use patterns</b> by providing increased protection to fish and fish habitat by reducing the likelihood of fuel or oil contaminating water bodies; and would be equally effective in limiting the impacts that oil and gas exploration and development will have on <b>wild and scenic river</b> values (Moderate). |  |  |
| 16. Refueling of equipment within 500 feet of the highest high water mark of any water body is prohibited with the exception of refueling motor boats, float planes, and ski planes. (See <i>Stipulation 24n</i> for restrictions related to overland moves and seismic operations.)  | <b>A-5 Required Operating Procedure as in No. 14 above.</b>  | <b>A-5 Required Operating Procedure as in No. 14 above.</b>  |
| Effectiveness of <i>Alternative A - Stipulation 16 and Alternatives B, C, and D - ROP A-5*</i> shown in No. 14 above.   |  |  |
| 17. All fuel containers, including barrels and propane tanks, shall be marked with the responsible party's name, product type, and year filled or purchased.  | <b>A-4e Required Operating Procedure</b><br><u>Objective:</u> Minimize the impact of contaminants on fish, wildlife, and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil,   | <b>A-4e Required Operating Procedure</b><br><u>Objective:</u> Minimize the impact of contaminants on fish, wildlife, and the environment, including wetlands, marshes and marine waters, as a result of fuel, crude oil,   |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>WASTE PREVENTION, HANDLING, AND DISPOSAL AND SPILLS AND PUBLIC SAFETY</b>  |   |   |
|   | <p>and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.</p> <p><u>Requirement/Standard:</u> Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:</p> <p>e. <u>Proper Identification of Containers.</u> All fuel containers, including barrels and propane tanks, shall be marked with the responsible party's name, product type, and year filled or purchased.</p> | <p>and other liquid chemical spills. Protect subsistence resources and subsistence activities. Protect public health and safety.</p> <p><u>Requirement/Standard:</u> Before initiating any oil and gas or related activity or operation, including field research/surveys and/or seismic operations, lessees/permittees shall develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act). The plan shall consider and take into account the following requirements:</p> <p>e. <u>Proper Identification of Containers.</u> All fuel containers, including barrels and propane tanks, shall be marked with the responsible party's name, product type, and year filled or purchased.</p> |
| <p><i>Alternative A - Stipulation 17 and Alternatives B, C, and D - ROP A-4e*</i> would all effectively reduce impacts to <b>water resources and quality, freshwater and marine fish habitat and fish, birds, terrestrial and marine mammals, endangered and threatened species, and subsistence use patterns</b> by requiring lessees/permittees to develop a comprehensive spill prevention and response contingency plan per 40 CFR § 112 (Oil Pollution Act); the plan shall consider and take into account the requirement of properly identifying containers which included all fuel containers, including barrels and propane tanks; and all containers shall be marked with the responsible party's name, product type, and year filled or purchased. This will ensure that should a spill occur, proper treatment procedures are implemented based on the type of material spilled (Moderate). <i>These requirements</i> would be equally effective in determining the type of material and its likely impacts to freshwater and marine fish habitat and fish should a spill occur (Moderate); would be equally effective in reducing the potential impacts to birds by ensuring that if a spill occurs, the spill material is correctly identified and proper response procedures implemented (Moderate); would be equally effective in reducing impacts to terrestrial and marine mammals by ensuring that should a spill occur, proper spill response and treatment procedures are implemented based on the type of material spilled (Moderate); would be equally effective in reducing impacts to endangered and threatened species by ensuring that should a spill occur, proper spill response and treatment procedures are implemented based on the type of material spilled (Moderate); and would be equally effective in reducing impacts on subsistence use patterns by ensuring that the risks of consuming subsistence species that come into contact with a spilled material are identified based on the type of material spilled (Moderate).</p> |   |   |
| <b>ICE ROADS AND WATER USE</b>  |   |   |
| 18. The location of winter ice roads shall be offset from year to year to minimize vegetative impacts. The offset shall be greater than or equal to the width of the road.  | <p><b><i>C-2e Required Operating Procedure</i></b></p> <p><u>Objective:</u> Protect stream banks, minimize compaction of soils, and minimize the breakage, abrasion, compaction, or displacement of vegetation.</p> <p><u>Requirement/Standard:</u></p> <p>e. The location of winter ice roads shall be designed and located to minimize compaction of soils and the breakage, abrasion, compaction, or displacement of vegetation. Offsets may be required to avoid using the same route or track in the subsequent year.</p>  | <p><b><i>C-2e Required Operating Procedure</i></b></p> <p><u>Objective:</u> Protect stream banks, minimize compaction of soils, and minimize the breakage, abrasion, compaction, or displacement of vegetation.</p> <p><u>Requirement/Standard:</u></p> <p>e. The location of winter ice roads shall be designed and located to minimize compaction of soils and the breakage, abrasion, compaction, or displacement of vegetation. Offsets may be required to avoid using the same route or track in the subsequent year.</p>  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|--|---|---|
| <b>ICE ROADS AND WATER USE</b>   |   |   |
| <p><i>Alternative A - Stipulation 18 and Alternatives B, C, and D - ROP C-2e*</i> would all effectively provide protection for <b>soil, paleontological and cultural resources, water resources and water quality, vegetation, terrestrial mammals, endangered and threatened species, subsistence use patterns, wild and scenic river values, and visual resources</b> by requiring the lessees/permittees to design and locate winter ice roads to minimize compaction of soils and the breakage, abrasion, compaction, or displacement of vegetation. Offsets may be required to avoid using the same route or track in the subsequent year. This mitigation would reduce damage to stream banks, reducing rutting and erosion, and generally reducing impacts to vegetation by restricting seismic activity and overland moves to winter (Moderate); would be equally effective in providing protection from seismic and overland move activities that could potentially disturb the vegetative mat and impact paleontological and cultural resources that are near the surface (Moderate); would be equally effective in protecting water resources and water quality by regulating overland moves, seismic work, ice-road construction, and other heavy equipment travel during the winter (Moderate); would be equally effective in reducing the level of impacts to vegetation by reducing impacts of off-road vehicles (Moderate); would be equally beneficial to terrestrial mammals by reducing the amount of habitat disturbed during overland moves and seismic work. (Moderate); would be equally beneficial to endangered and threatened species by reducing the amount of habitat disturbed during overland moves and seismic work (Moderate); would be equally effective in reducing impacts on subsistence use patterns by providing increased protection to fish and wildlife habitat (Moderate); would be equally effective in limiting the impacts that oil and gas exploration and development will have on wild and scenic river values (Moderate); and would be equally beneficial to visual resources by reducing the amount of surface disturbance due to seismic activities (Moderate).</p> |   |   |
| <p>19. Compaction of snow cover or snow removal from fish-bearing water bodies shall be prohibited except at approved ice-road crossings.</p>  | <p><b><i>B-2h Required Operating Procedure</i></b><br/> <u>Objective:</u> Maintain natural hydrologic regimes in soils surrounding lakes and ponds, and maintain populations of, and adequate habitat for, fish and invertebrates, and waterfowl.<br/> <u>Requirement/Standard:</u> Water withdrawal from lakes may be authorized on a site-specific basis depending on size, water volume, depth and fish population and species diversification. Water withdrawal requirements specify:<br/>             h. Compaction of snow cover or snow removal from fish-bearing water bodies shall be prohibited except at approved ice road crossings, water pumping stations on lakes, or areas of grounded ice.</p> | <p><b><i>B-2h Required Operating Procedure</i></b><br/> <u>Objective:</u> Maintain natural hydrologic regimes in soils surrounding lakes and ponds, and maintain populations of, and adequate habitat for, fish and invertebrates, and waterfowl.<br/> <u>Requirement/Standard:</u> Water withdrawal from lakes may be authorized on a site-specific basis depending on size, water volume, depth and fish population and species diversification. Water withdrawal requirements specify:<br/>             h. Compaction of snow cover or snow removal from fish-bearing water bodies shall be prohibited except at approved ice road crossings, water pumping stations on lakes, or areas of grounded ice.</p> |
| <p><i>Alternative A - Stipulation 19 and Alternatives B, C, and D - ROP B-2h*</i> would be equally effective in protecting <b>water resources and water quality, freshwater fish and their habitats, bird, and subsistence-harvest patterns</b> by requiring water withdrawal requirements to specify that compaction of snow cover or snow removal from fish-bearing water bodies be prohibited except at approved ice road crossings, water pumping stations on lakes. This requirement would effectively protect water resources and water quality and freshwater fish and their habitats by prohibiting snow compaction and removal from fish-bearing water bodies (High); would be equally effective in reducing impacts to some bird species by preventing winter die-off of prey of fish-eating birds (e.g., loons, mergansers, terns), which could adversely affect the breeding success of these bird species (High); and would be equally effective in reducing impacts on subsistence-harvest patterns by providing increased protection to fish and fish habitat and by limiting snow removal from water bodies (High).</p>  |   |   |
| <p>20. Water withdrawal from rivers and streams during winter is prohibited. Water withdrawal is prohibited during winter flooding by a fish-bearing stream. Water may be withdrawn from isolated lakes that are less than 7 feet (2.1 m) deep that lack connection to</p>   | <p><b><i>B-1 Required Operating Procedure</i></b><br/> <u>Objective:</u> Maintain populations of, and adequate habitat for, fish and invertebrates.<br/> <u>Requirement/Standard:</u> Water withdrawal from rivers and streams during winter is prohibited.</p>   | <p><b><i>B-1 Required Operating Procedure</i></b><br/> <u>Objective:</u> Maintain populations of, and adequate habitat for, fish and invertebrates.<br/> <u>Requirement/Standard:</u> Water withdrawal from rivers and streams during winter is prohibited.</p>   |



Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <p style="text-align: center;"><b>ICE ROADS AND WATER USE</b></p> <p>or are not subject to seasonal flooding by a fish-bearing stream. After consultation with the appropriate federal, state, and NSB regulatory and resource agencies, the AO may authorize withdrawals from any lake less than 7 feet (2.1 m) deep, if the proponent demonstrates that no fish exist in the lake.</p> <p>Generally, water withdrawal drawdown during winter from lakes 7 feet (2.1 m) deep or deeper shall be limited to 15 percent of the estimated free-water volume (i.e., excluding the ice). After consultation with the appropriate federal, state, and NSB regulatory and resource agencies, the AO may authorize drawdown exceeding 15 percent from a lake greater than 7 feet (2.1 m) deep, if the proponent of the additional drawdown demonstrates that no fish exist in the lake. Operators are encouraged to use new ice-road and ice-pad construction methods, such as using aggregate ‘chips’ shaved from frozen lakes, to decrease water demands, construction time, and impact on fisheries.</p> |  |  |
|  | <p><b><i>B-2 Required Operating Procedure</i></b><br/> <u>Objective:</u> Maintain natural hydrologic regimes in soils surrounding lakes and ponds, and maintain populations of, and adequate habitat for, fish and invertebrates, and waterfowl.<br/> <u>Requirement/Standard:</u> Water withdrawal from lakes may be authorized on a site-specific basis depending on lake size, water volume, and depth, and fish population and species diversification. Water withdrawal requirements specify:</p> <ol style="list-style-type: none"> <li>Lakes that are <math>\geq 7</math> feet with sensitive fish (any fish except ninespine stickleback or Alaska blackfish), water available for withdrawal is limited to 15% of calculated volume deeper than 7 feet; lakes that are between 5 and 7 feet with sensitive fish, water available for withdrawal would be calculated on a case by case basis.</li> <li>Lakes that are <math>\geq 5</math> feet with only non-sensitive fish (i.e., ninespine stickleback or Alaska blackfish), water is available for withdrawal is limited to 30% of calculated volume deeper than 5 feet.</li> <li>Any lake with no fish present, regardless of depth, water available for withdrawal is up to 100% as specified within the permit.</li> <li>A water-monitoring plan may be required to assess draw down and water quality changes before, during, and after pumping any fish-bearing lake or lake of special concern.</li> <li>The removal of naturally grounded ice may be authorized from lakes and shallow rivers on a site-specific basis depending upon its size,</li> </ol> | <p><b><i>B-2 Required Operating Procedure</i></b><br/> <u>Objective:</u> Maintain natural hydrologic regimes in soils surrounding lakes and ponds, and maintain populations of, and adequate habitat for, fish and invertebrates, and waterfowl.<br/> <u>Requirement/Standard:</u> Water withdrawal from lakes may be authorized on a site-specific basis depending on lake size, water volume, and depth, and fish population and species diversification. Water withdrawal requirements specify:</p> <ol style="list-style-type: none"> <li>Lakes that are <math>\geq 7</math> feet with sensitive fish (any fish except ninespine stickleback or Alaska blackfish), water available for withdrawal is limited to 15% of calculated volume deeper than 7 feet; lakes that are between 5 and 7 feet with sensitive fish, water available for withdrawal would be calculated on a case by case basis.</li> <li>Lakes that are <math>\geq 5</math> feet with only non-sensitive fish (i.e., ninespine stickleback or Alaska blackfish), water is available for withdrawal is limited to 30% of calculated volume deeper than 5 feet.</li> <li>Any lake with no fish present, regardless of depth, water available for withdrawal is up to 100% as specified within the permit.</li> <li>A water-monitoring plan may be required to assess draw down and water quality changes before, during, and after pumping any fish-bearing lake or lake of special concern.</li> <li>The removal of naturally grounded ice may be authorized from lakes and shallow rivers on a site-specific basis depending upon its size,</li> </ol> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|--|---|
| <b>ICE ROADS AND WATER USE</b>  |  |   |
|   | <p>water volume, and depth, and fish population and species diversification.</p> <p>f. Removed ice aggregate shall be included in the 15 percent or 30 percent withdrawal limits—whichever is the appropriate case—unless otherwise approved.</p> <p>g. Any water intake structures in fish bearing or non-fish bearing waters shall be designed, operated, and maintained to prevent fish entrapment, entrainment, or injury. <u>Note: All water withdrawal equipment must be equipped and must utilize fish screening devices approved by the Alaska Department of Natural Resources (ADNR).</u></p> | <p>water volume, and depth, and fish population and species diversification.</p> <p>f. Removed ice aggregate shall be included in the 15 percent or 30 percent withdrawal limits—whichever is the appropriate case—unless otherwise approved.</p> <p>g. Any water intake structures in fish bearing or non-fish bearing waters shall be designed, operated, and maintained to prevent fish entrapment, entrainment, or injury. <u>Note: All water withdrawal equipment must be equipped and must utilize fish screening devices approved by the Alaska Department of Natural Resources (ADNR).</u></p>  |
| <p><i>Alternative A - Stipulation 20 and Alternatives B, C, and D - ROP B-1*</i> would be equally beneficial in protecting <b>water resources and water quality, freshwater fish, bird species, subsistence-harvest patterns, wild and scenic rivers, water resources and water quality, and local hydrology</b> by prohibiting water removal from streams and rivers during winter. These mitigations would be effective in protecting overwintering habitat, and preventing harm to <b>freshwater fish</b> from fish intake structures (Moderate); would be equally effective in reducing impacts to some <b>bird</b> species by preventing winter die-off of fish prey of fish-eating birds (e.g., loons, mergansers, terns), which could adversely affect the breeding success of these water bird species (High); would be equally effective in reducing impacts on <b>subsistence-harvest patterns</b> by providing increased protection to fish and fish habitat and by prohibiting water removal from rivers and streams (High); would be equally effective in preserving instream flows in eligible <b>wild and scenic rivers</b> (High); and would be equally effective in protecting <b>water resources and water quality, and local hydrology</b> by prohibiting or limiting water removal from lakes and ponds (Moderate).</p> <p><i>Alternative A – Stipulation 20 and Alternatives B, C, and D - ROP B-2*</i> would be equally effective in reducing impacts on subsistence-harvest patterns by providing increased protection to fish and fish habitat and by limiting water removal from fish-bearing lakes and preventing harm to fish from fish intake structures (Moderate); would be essentially as effective as <i>ROP B-2</i> (Moderate) in protecting sensitive (any fish except nine-spine stickleback or Alaska blackfish) freshwater fish and their habitats.</p> <p><i>Alternative A – Stipulation 20</i> (High) may be more effective than <i>Alternative B, C, and D - ROP B-2*</i> (Moderate) in reducing impacts to some <b>bird</b> species by preventing winter die-off of fish prey of fish-eating birds (e.g., loons, mergansers, terns), which could adversely affect the breeding success of these water bird species; <i>ROP B-1</i> would allow water withdrawals in lakes with non-sensitive fish that are &lt; 7 feet deep, whereas <i>Stipulation 20</i> would prohibit this activity.</p> |  |   |
| <p>21. The AO, in consultation with appropriate federal, state, and NSB regulatory and resource agencies, may allow water extraction from any lake used by molting geese, if it is determined that the withdrawal is consistent with <i>Stipulation 20</i> and will not adversely affect identified goose-feeding habitat along lakeshore margins. An analysis/demonstration of the hydrologic functions of the lake(s) under review may be required of the lessee by the AO prior to approval of the</p>   | <p><b><i>K-4a Lease Stipulation - Goose Molting Area</i></b><br/> <b>Objective:</b> Minimize disturbance to molting geese and loss of goose molting habitat in and around lakes in the Goose Molting Area.<br/> <b>Requirement/Standard:</b> In goose molting habitats, the following standards will be followed for permitted activities:</p> <p>a. Water extraction from any lake used by molting geese shall not alter hydrological conditions that could adversely affect identified goose-feeding habitat along lakeshore margins. Considerations will be given to seasonal use by</p>            | <p><b><i>K-4a Lease Stipulation - Goose Molting Area</i></b><br/> <b>Objective:</b> Minimize disturbance to molting geese and loss of goose molting habitat in and around lakes in the Goose Molting Area.<br/> <b>Requirement/Standard (General):</b> Within the Goose Molting Area no permanent oil and gas facilities, except for pipelines, would be allowed on the approximately 217,000 acres illustrated on <a href="#">Map 2-4</a>. No exceptions will be considered.<br/> <b>Requirement/Standard (Exploration):</b> In goose molting habitat area, exploratory drilling shall be limited to temporary facilities such as ice pads, ice roads, ice</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|---|--|
| <p style="text-align: center;"><b>ICE ROADS AND WATER USE</b></p>  |   |  |
| withdrawal.  | operators (generally in winter) and geese (generally in summer), as well as recharge to lakes from the spring snow melt.  | <p>airstrips, and temporary platforms, unless the lessee demonstrates that construction of permanent facilities (outside the identified Goose Molting No Surface Occupancy Areas) such as gravel airstrips, storage pads, and connecting roads is environmentally preferable (Also see <i>Stipulation K-11</i> regarding allowable surface disturbance). In addition, the following standards will be followed for permitted activities:</p> <p>a. From May 20 through August 20 exploratory drilling and associated activities are prohibited. The intent of this rule is to restrict exploration drilling during the period when geese are present.</p> <p>b. Water extraction from any lake used by molting geese shall not alter hydrological conditions that could adversely affect identified goose-feeding habitat along lakeshore margins. Considerations will be given to seasonal use by operators (generally in winter) and geese (generally in summer), as well as recharge to lakes from the spring snowmelt.</p> |
| <p><i>In the Goose Molting Area:</i> Where it applies, <i>Stipulation 21(Alternative A)</i>, <i>Lease Stipulation K-4a (Alternatives B and C)</i> and <i>Lease Stipulation K-4b (Alternative D)</i> provide essentially the same level of protection for lakes used by molting geese (in the goose molting area north of Teshekpuk Lake) by ensuring that water extraction from any lake used by molting geese shall not alter hydrological conditions that could adversely affect identified goose-feeding habitat along lakeshore margins. However, other elements of each alternative, i.e. No Surface Occupancy restrictions, and/or management decisions that make lands available or unavailable to oil and gas leasing, provide a different means for resource protection. Therefore, while the mitigations are comparable in providing protection to this resource, this is not to say that the overall level of protection under the various <i>Alternatives</i> is necessarily equal or the same based on management decisions in the planning area. Please see <a href="#">Table 2.3</a> for a discussion regarding the comparison of impacts among alternatives.</p> <p>Each of these stipulations would effectively protect <b>water resources and water quality, wetlands, vegetation, freshwater fish, and birds</b> by limiting water withdrawals from lakes used by molting geese; would effectively reduce impacts to <b>endangered and threatened species</b> by limiting habitat loss or disturbance of nesting and brood-rearing eiders and other birds by ensuring that water extraction from goose molting lakes does not harm foraging habitat; would effectively reduce impacts to <b>subsistence use patterns</b> by limiting habitat loss or disturbance of nesting and brood-rearing waterfowl and other birds, by ensuring that water extraction from goose molting lakes does not impact foraging habitat.</p> |   |  |
| 22. Except for approved crossings, alteration of the banks of a waterway is prohibited. Waterways include natural features with sufficient water to create riparian (willow) habitat such as rivers, streams, deep and shallow lakes, tundra ponds, and shallow water tracks. Clearing of willows along the riparian zone is prohibited. Movement of equipment through willow stands shall be avoided  | <p><b><i>C-2c, e Required Operating Procedure</i></b><br/> <b>Objective:</b> Protect stream banks, minimize compaction of soils, and minimize the breakage, abrasion, compaction, or displacement of vegetation.<br/> <b>Requirement/Standard:</b></p> <p>c. Bulldozing of tundra mat and vegetation, trails, or seismic lines is prohibited; however, on existing trails, seismic lines or camps, clearing</p> | <p><b><i>C-2c, e Required Operating Procedure</i></b><br/> <b>Objective:</b> Protect stream banks, minimize compaction of soils, and minimize the breakage, abrasion, compaction, or displacement of vegetation.<br/> <b>Requirement/Standard:</b></p> <p>c. Bulldozing of tundra mat and vegetation, trails, or seismic lines is prohibited; however, on existing trails, seismic lines or camps, clearing</p>  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>ICE ROADS AND WATER USE</b>  |  |  |
| whenever possible.  | <p>of drifted snow is allowed to the extent that the tundra mat is not disturbed.</p> <p>e. The location of winter ice roads shall be designed and located to minimize compaction of soils and the breakage, abrasion, compaction, or displacement of vegetation. Offsets may be required to avoid using the same route or track in the subsequent year.</p>   | <p>of drifted snow is allowed to the extent that the tundra mat is not disturbed.</p> <p>e. The location of winter ice roads shall be designed and located to minimize compaction of soils and the breakage, abrasion, compaction, or displacement of vegetation. Offsets may be required to avoid using the same route or track in the subsequent year.</p>   |
| <p><i>Alternative A – Stipulation 22 and Alternatives B, C, and D – ROP C-2c and e</i> would be equally effective in providing protection for <b>soils, paleontological and cultural resources, water resources and water quality, vegetation, wetlands, freshwater fish habitat and fish, terrestrial mammals, subsistence use patterns, wild and scenic river values, and visual resource values</b> by prohibiting bulldozing of tundra mat and vegetation, and seismic lines on existing trails; seismic lines or camps; clearing of drifted snow would only be allowed to the extent that the tundra mat is not disturbed. The location of winter ice roads shall be designed and located to minimize compaction of soils and the breakage, abrasion, compaction, or displacement of vegetation. Offsets may be required to avoid using the same route or track in the subsequent year.</p> <p>These mitigations would be equally: effective in providing protection for <b>soils</b> by reducing damage to stream banks, reducing rutting, and generally reducing impacts to <b>vegetation</b> by restricting seismic activity and overland moves to winter (Moderate); effective in providing protection from seismic and overland move activities that could potentially disturb the vegetative mat and impact <b>paleontological and cultural resources</b> that are near the surface (Moderate); effective in protecting <b>water resources and water quality</b> by regulating overland moves, seismic work, ice-road construction, and other heavy equipment travel during the winter to limit impacts to water resources (Moderate); equally effective in reducing the level of impacts to vegetation and wetlands by reducing impacts of off-road vehicles (Moderate); beneficial to <b>freshwater fish</b> habitat and fish by reducing damage to stream banks at river crossings and reducing rutting and other damage to the vegetative mat (Moderate); and would put restrictions on the types of heavy equipment used and the seasons of allowable use and would be equally beneficial to <b>terrestrial mammals</b> by reducing the amount of habitat disturbed during overland moves and seismic work (Moderate). They would be also equally effective in reducing impacts on subsistence use patterns by providing increased protection to <b>fish and fish habitat</b> (Moderate), and effective in limiting the impacts that oil and gas exploration and development would have on <b>wild and scenic river</b> values as well as <b>visual resource</b> values (Moderate).</p> |  |  |
| <b>OVERLAND MOVES AND SEISMIC WORK</b>  |  |  |
| <p>23. Seismic work is prohibited within 1,200 feet of any known, long-term cabin or campsite, identified by the AO, without the written permission of the AO. The AO's decision will be informed by the consultation process described in <i>Stipulation 61</i>.</p>   | <p><b>H-2 Required Operating Procedure</b><br/> <u>Objective:</u> Prevent unreasonable conflicts between subsistence activities and geophysical (seismic) exploration.<br/> <u>Requirement/Standard:</u> In addition to the consultation process described above for permitted activities, before applying for permits to conduct geophysical (seismic) exploration, the applicant shall consult with local communities and residents.</p> | <p><b>H-2 Required Operating Procedure</b><br/> <u>Objective:</u> Prevent unreasonable conflicts between subsistence activities and geophysical (seismic) exploration.<br/> <u>Requirement/Standard:</u> In addition to the consultation process described above for permitted activities, before applying for permits to conduct geophysical (seismic) exploration, the applicant shall consult with local communities and residents.</p> |
| <p><i>Alternative A – Stipulation 23 and Alternatives B, C, and D – ROPs C-2(b)</i> provide some mitigation for potential impacts to <b>subsistence</b> harvest patterns and <b>sociocultural systems</b>. Subsistence operations can disturb and potentially displace (temporarily) subsistence species and therefore disrupt subsistence activities, therefore restriction or minimization of seismic operations in proximity to subsistence cabins should minimize and avoid some potential impacts to subsistence. <i>Stipulation 22 (Alternative A)</i> may be more effective (Moderate) in providing additional protection as it prohibits seismic operations within 1,200 ft of known cabins, whereas <i>ROP H-2</i> only requires notification of owners of cabins within 1,200 ft. <i>ROP H-2 (Low)</i> may allow oil and gas activities at less distance from cabins and camps than <i>Stipulation 24</i>. The AO must authorize the seismic program under</p>  |  |  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|--|---|---|
| <b>OVERLAND MOVES AND SEISMIC WORK</b>   |   |   |
| either stipulation.  |   |   |
| <p>24. The following restrictions apply to overland moves, seismic work, and any similar use of heavy equipment (other than actual excavations as part of construction) on unroaded surfaces during the winter season:</p> <p>a. Because polar bears are known to den predominantly within 25 miles of the coast, operators shall consult with the USFWS prior to initiating activities in such habitat between October 30 and April 15. Activities are prohibited within 1 mile of known or observed polar bear dens; obtain locations from the USFWS, (907) 786-3800. Operators are encouraged to apply for a letter of authorization from the USFWS to conduct activities in polar bear denning areas.</p> <p>b. Motorized ground-vehicle use will be minimized within the Colville River Raptor, Passerine, and Moose Area LUEA from April 15 through August 5, with the exception that use will be minimized in the vicinity of gyrfalcon nests beginning March 15. Such use will remain ½ mile away from known raptor-nesting sites, unless authorized by the AO. The BLM shall consult with USFWS to plan travel routes to minimize disturbance to raptors.</p> | <p><b><i>C-1b Required Operating Procedure</i></b></p> <p>b. Cross-country use of heavy equipment and seismic activities is prohibited within 1 mile of known or observed polar bear dens or seal birthing lairs. Operators shall consult with the USFWS and/or NOAA Fisheries, as appropriate, before initiating activities in coastal habitat between October 30 and April 15.</p> <p><b><i>K-7 Lease Stipulation - Colville River Special Area</i></b><br/> <u>Objective:</u> Prevent or minimize loss of raptor foraging habitat.<br/> <u>Requirement/Standard:</u> If necessary to construct permanent facilities within the Colville River Special Area, all reasonable and practicable efforts shall be made to locate permanent facilities as far from raptor nests as feasible. Within 15 miles of raptor nest sites, significant alteration of high quality foraging habitat shall be prohibited unless the lessee can demonstrate on a site-specific basis that impacts would be minimal or it is determined that there is no feasible or prudent alternative. Of particular concern are ponds, lakes, wetlands, and riparian habitats. <u>Note: On a case-by case basis, and in consultation with appropriate federal and state regulatory and resource agencies, essential pipeline and road crossings will be permitted through these areas where no other feasible or prudent options are available.</u></p> <p>a. The following restrictions apply to overland moves, seismic work, and any similar use of heavy equipment (other than actual excavations as part of construction) on tundra surfaces</p> | <p><b><i>C-1b Required Operating Procedure</i></b></p> <p>b. Cross-country use of heavy equipment and seismic activities is prohibited within 1 mile of known or observed polar bear dens or seal birthing lairs. Operators shall consult with the USFWS and/or NOAA Fisheries, as appropriate, before initiating activities in coastal habitat between October 30 and April 15.</p> <p><b><i>K-7 Lease Stipulation - Colville River Special Area</i></b><br/> <u>Objective:</u> Prevent or minimize loss of raptor foraging habitat.<br/> <u>Requirement/Standard:</u> If necessary to construct permanent facilities within the Colville River Special Area, all reasonable and practicable efforts shall be made to locate permanent facilities as far from raptor nests as feasible. Within 15 miles of raptor nest sites, significant alteration of high quality foraging habitat shall be prohibited unless the lessee can demonstrate on a site-specific basis that impacts would be minimal or it is determined that there is no feasible or prudent alternative. Of particular concern are ponds, lakes, wetlands, and riparian habitats. <u>Note: On a case-by case basis, and in consultation with appropriate federal and state regulatory and resource agencies, essential pipeline and road crossings will be permitted through these areas where no other feasible or prudent options are available.</u></p> <p>a. The following restrictions apply to overland moves, seismic work, and any similar use of heavy equipment (other than actual excavations as part of construction) on tundra surfaces</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <p style="text-align: center;"><b>OVERLAND MOVES AND SEISMIC WORK</b></p>  |  |  |
| <p>c. Crossing of waterway courses shall be made using a low-angle approach to avoid disruption of the natural stream or lake bank. Except at approved crossings, operators are encouraged to travel a minimum of 100 feet from overwintering fish streams and lakes.</p> <p>d. If snow ramps or snow bridges are used at water crossings for bank protection, the ramps and bridges shall be substantially free of soil and/or debris. Snow bridges shall be removed or breached immediately after use or before spring breakup.</p> <p>e. To avoid additional freeze down of deep-water pools harboring overwintering fish, waterways shall be crossed at shallow riffles from point bar to point bar whenever possible.</p> | <p>during the winter season:</p> <p>1. Motorized ground-vehicle use shall be minimized within the Colville Raptor, Passerine, and Moose Area from April 15 through August 5, with the exception that use will be minimized in the vicinity of gyrfalcon nests beginning March 15. Such use will remain ½ mile away from known raptor nesting sites, unless authorized by the AO.</p> <p><b>C-4 Required Operating Procedure</b><br/><u>Objective:</u> Avoid additional freeze-down of deep-water pools harboring over-wintering fish and invertebrates used by fish.<br/><u>Requirement/Standard:</u> Travel up and down streambeds is prohibited unless it can be demonstrated that there will be no additional impacts from such travel to over-wintering fish or the invertebrates they rely on. Rivers and streams shall be crossed at shallow riffles from point bar to point bar whenever possible.</p> <p><b>C-3 Required Operating Procedure</b><br/><u>Objective:</u> Maintain natural spring runoff patterns, avoid flooding, prevent streambed sedimentation, protect water quality and protect stream banks.<br/><u>Requirement/Standard:</u> Crossing of waterway courses shall be made using a low-angle approach. Snow and ice bridges shall be removed, breached, or slotted before spring breakup. Ramps and bridges shall be substantially free of soil and debris.</p> <p><b>C-4 Required Operating Procedure as above.</b></p> <p><b>C-2 Required Operating Procedure</b><br/><u>Objective:</u> Protect stream banks, minimize compaction of soils, and minimize the breakage, abrasion, compaction, or displacement of vegetation.<br/><u>Requirement/Standard:</u></p> | <p>during the winter season:</p> <p>1. Motorized ground-vehicle use shall be minimized within the Colville Raptor, Passerine, and Moose Area from April 15 through August 5, with the exception that use will be minimized in the vicinity of gyrfalcon nests beginning March 15. Such use will remain ½ mile away from known raptor nesting sites, unless authorized by the AO.</p> <p><b>C-4 Required Operating Procedure</b><br/><u>Objective:</u> Avoid additional freeze-down of deep-water pools harboring over-wintering fish and invertebrates used by fish.<br/><u>Requirement/Standard:</u> Travel up and down streambeds is prohibited unless it can be demonstrated that there will be no additional impacts from such travel to over-wintering fish or the invertebrates they rely on. Rivers and streams shall be crossed at shallow riffles from point bar to point bar whenever possible.</p> <p><b>C-3 Required Operating Procedure</b><br/><u>Objective:</u> Maintain natural spring runoff patterns, avoid flooding, prevent streambed sedimentation, protect water quality and protect stream banks.<br/><u>Requirement/Standard:</u> Crossing of waterway courses shall be made using a low-angle approach. Snow and ice bridges shall be removed, breached, or slotted before spring breakup. Ramps and bridges shall be substantially free of soil and debris.</p> <p><b>C-4 Required Operating Procedure as above.</b></p> <p><b>C-2 Required Operating Procedure</b><br/><u>Objective:</u> Protect stream banks, minimize compaction of soils, and minimize the breakage, abrasion, compaction, or displacement of vegetation.<br/><u>Requirement/Standard:</u></p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <b>OVERLAND MOVES AND SEISMIC WORK</b>   |  |  |
| <p>f. On-the-ground activities shall use low-ground-pressure vehicles such as Rolligons, ARDCO, Trackmaster, Nodwell, or similar types of vehicles. A current list of approved vehicles can be obtained from the AO. Limited use of tractors equipped with wide tracks or "shoes" will be allowed to pull trailers.</p>  | <p>b. Only low-ground-pressure vehicles shall be used for on-the-ground activities off ice roads or pads. A list of approved vehicles can be obtained from the AO. Limited use of tractors equipped with wide tracks or "shoes" will be allowed to pull trailers, sleighs or other equipment with approved undercarriage. <u>Note: This provision does not include the use of heavy equipment such as front-end loaders and similar equipment required during ice road construction.</u></p> | <p>b. Only low-ground-pressure vehicles shall be used for on-the-ground activities off ice roads or pads. A list of approved vehicles can be obtained from the AO. Limited use of tractors equipped with wide tracks or "shoes" will be allowed to pull trailers, sleighs or other equipment with approved undercarriage. <u>Note: This provision does not include the use of heavy equipment such as front-end loaders and similar equipment required during ice road construction.</u></p> |
| <p>g. Bulldozing of tundra, trails, or seismic lines is prohibited. This stipulation, however, does not prohibit the clearing of drifted snow along a trail, seismic line, or in a camp, to the extent that the tundra mat is not disturbed. Snow may be cleared from a water body ice surface to prepare an aircraft runway, if approved by the AO in consultation with appropriate federal, state, and NSB regulatory and resource agencies.</p> | <p>c. Bulldozing of tundra mat and vegetation, trails, or seismic lines is prohibited; however, on existing trails, seismic lines or camps, clearing of drifted snow is allowed to the extent that the tundra mat is not disturbed.</p>  | <p>c. Bulldozing of tundra mat and vegetation, trails, or seismic lines is prohibited; however, on existing trails, seismic lines or camps, clearing of drifted snow is allowed to the extent that the tundra mat is not disturbed.</p>  |
| <p>h. To reduce the possibility of ruts, vehicles shall avoid using the same trails for multiple trips unless necessitated by serious safety or superseding environmental concern. This provision does not apply to ice roads (see <i>Stipulation 18</i> above).</p>   | <p>d. To reduce the possibility of ruts, vehicles shall avoid using the same trails for multiple trips unless necessitated by serious safety or superseding environmental concern. This provision does not apply to hardened snow trails for use by low-ground-pressure vehicles such as Rolligons.</p>  | <p>d. To reduce the possibility of ruts, vehicles shall avoid using the same trails for multiple trips unless necessitated by serious safety or superseding environmental concern. This provision does not apply to hardened snow trails for use by low-ground-pressure vehicles such as Rolligons.</p>  |
| <p>i. Ground operations are to begin only after the seasonal frost in the tundra and underlying mineral soils has reached a depth of 12 inches, and the average snow cover is 6 inches deep. The exact date shall be determined by the AO.</p>   | <p>a. Ground operations shall be allowed only when frost and snow cover are at sufficient depths to protect the tundra. Ground operations shall cease when the spring snowmelt begins (approximately May 5 in the foothills area where elevations reach or exceed 500 feet and approximately May 15 in the northern coastal areas). The exact dates will be determined by the AO.</p>  | <p>a. Ground operations shall be allowed only when frost and snow cover are at sufficient depths to protect the tundra. Ground operations shall cease when the spring snowmelt begins (approximately May 5 in the foothills area where elevations reach or exceed 500 feet and approximately May 15 in the northern coastal areas). The exact dates will be determined by the AO.</p>  |
| <p>j. Ground operations shall cease when the spring melt of snow begins; approximately May 5 in the foothills area where elevations exceed 300 feet, and approximately May 15 in the northern</p>  |  |  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C        | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action                    |
|---|---|---|
| <b>OVERLAND MOVES AND SEISMIC WORK</b>  |   |   |
| <p>coastal areas. The exact date will be determined by the AO.</p> <p>k. Seismic activities and overland moves within the Goose Molting LUEA and the Teshekpuk Lake Caribou Habitat LUEA from May 1 through September 30 are prohibited. (Note that this overrides language in <i>Stipulation 24j</i>.)</p> <p>l. To prevent surface disturbance to tundra and other vegetation, tracked vehicles will not execute tight turns by locking one track.</p> <p>m. Operators shall use best available technology (e.g., self-contained containment systems) or other appropriate spill containment measures, approved by the AO, to prevent fuel migration from fuel or chemical storage areas to the environment due to overfills and spills.</p> <p>n. Refueling of equipment is prohibited within the active floodplain of any water body.</p>   | <p><i>A-4 Required Operating Procedure as in No. 11 above.</i></p> <p><i>A-5 Required Operating Procedure as in No. 14 above.</i></p> | <p><i>A-4 Required Operating Procedure as in No. 11 above.</i></p> <p><i>A-5 Required Operating Procedure as in No. 14 above.</i></p> |
| <p><i>Alternative A – Stipulation 24(a) and Alternatives B, C, and D – ROP C-1(b)</i> provide the same benefit in minimizing potential impacts to <b>marine and terrestrial mammals</b>, specifically polar bears and seals, and subsistence use patterns for these resources by prohibiting the use of heavy equipment or seismic activities within 1.0 miles of any known polar bear dens or seal lairs throughout the area within the Planning Area where they may be found. Such activities could potentially disturb denning polar bears putting cubs at greater risk. It is thought that such disturbance is unlikely at a distance of 1.0 miles or greater. Such activities could also crush snow lairs used by seal pups or potentially disturb the seals. The location of all such dens and lairs is not known so the mitigation measure is thought to be moderate (Moderate).</p> <p><i>Alternative A – Stipulation 24 and Alternatives B, C, and D – ROP K-7</i> provide similar benefit in the avoidance and minimization of potential impacts to vegetation, <b>wetlands, endangered and threatened species, and birds</b>, particularly raptors, by reducing ground transportation activities in the area where most of the raptor nests occur. Raptors are most sensitive to disturbance when nesting. The lower two thirds of the Colville River support the highest concentration of raptor nests on the North Slope. Both mitigation measures are identical in prohibiting motorized ground transportation within ½ mile of the nests during the defined nesting period. It is thought that vehicle transport more than ½ mile from raptor nests will not disturb nesting raptors. <i>ROP K-7</i> actually applies to a larger area (Colville River Special Area) and includes all of the area covered under <i>Stipulation 24</i>. (Moderate). Both areas include the high raptor concentration area along the Colville. <i>ROP K-7</i> also mandates (<i>Stipulation 24</i> does not) that permanent oil and gas facilities be located as far as possible from raptor sites and prohibits significant alteration of high value wetlands and foraging habitats within 15 miles of nests, which should be moderately effective in reducing impacts to birds (specifically raptors), endangered and threatened species (eider habitat). The ROP would have low effectiveness in reducing impacts to vegetation as impacts would be shifted to other areas.</p> <p><i>Alternative A – Stipulation 2(c), (d), and (e), and Alternatives B, C, and D – ROP C-3 and C-4</i> provide equal benefits in the avoidance and minimization of potential impacts to <b>fish, subsistence</b> activities associated with fish, and freshwater fish habitat by directing lessees or seismic operators to cross streams at locations that are not over-wintering habitat, and by crossing at locations where the bank will not be disturbed. Clearing or compaction of snow over ice covered streams can increase the depth to which streams freeze. If this were to happen in the deeper areas where fish overwinter, the habitat could be lost temporarily, oxygen depleted, or fish displaced. These stipulations and ROPs direct the lessees and seismic operators to conduct their stream crossings in areas that are not overwintering fish habitat (e.g. riffles) effectively avoiding potential impacts to the overwintering habitat. These stipulations and ROPs also mandate that only clean snow be used in construction of snow bridges, and to use a low angle approach at the stream</p> |   |   |



Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <b>OVERLAND MOVES AND SEISMIC WORK</b>   |  |  |
| banks at crossings so the riparian habitat is maintained, and there is no subsequent degradation of aquatic habitats, wetlands, and riparian habitats due to erosions, protecting water resources and water quality, and wild and scenic rivers values (Moderate).<br><i>Alternative A – Stipulation 24(f), (g), (h), (i), and (e), and Alternatives B, C, and D – ROP C-2</i> provide equal benefits in the avoidance and minimization of potential impacts to <b>soils, paleontological and cultural resources, vegetation, and the terrestrial mammals and birds</b> dependent on the vegetation, by restricting the equipment, season, and manner in which overland moves and seismic operations can be conducted. Many tundra habitats are sensitive to physical disturbance and the movement of heavy equipment across the tundra can result in long-standing damage or changes to the soils and vegetation. Under all alternatives, these mitigation measures require the use of approved low ground-pressure vehicles, bulldozing of tundra, the off-setting of trails to prevent damage by repeated use in the same area, and the cessation of activities when spring snow melt begins. <i>Stipulation 24(i) – Alternative A</i> allows commencement of such overland moves only after there are 12 inches of frost and 6 inches of snow cover, while <i>ROP C-2(a)</i> permits activities when frost and snow cover are of sufficient depth to prevent damage, which should result in the same benefit. Studies have shown that little long-term changes or damage result when overland moves on the North Slope are conducted under these conditions (Moderate).<br><i>Alternative A – Stipulation 24(m), and (n), and Alternatives B, C, and D – ROP A-4 and A-5</i> provide equal benefits in the avoidance and minimization of potential impacts to <b>soils, vegetation, and the terrestrial mammals and birds</b> dependent on the vegetation, fish and freshwater fish habitat by restricting the location and manner in which refueling of heavy equipment can take place. These measures should significantly reduce fuel spills by mandating proper fuel containment, and prevent them from entering the aquatic environment by prohibiting refueling within floodplains. While <i>Alternative A - Stipulation 24(n)</i> prohibits refueling within active floodplain, <i>Alternatives B, C, and D, ROP A-5</i> extends that prohibition to the area within 500 ft of the floodplain and 100 ft of non-fish-bearing water bodies (Moderate). |  |  |
| <b>OIL AND GAS EXPLORATORY DRILLING</b>  |  |  |
| 25. From May 1 through September 30, exploratory drilling other than from production pads is prohibited in the Special Caribou Stipulations Area.  | <i>C1-b Required Operating Procedure as in No. 24 above.</i><br><br><i>K-7 Lease Stipulation – Colville River Special Area in No. 24 above.</i><br><br><i>C-4 Required Operating Procedure as in No. 24 above.</i><br><i>C-3 Required Operating Procedure as in No. 24 above.</i><br><i>C-2 Required Operating Procedure as in No. 24 above.</i><br><i>A-4 Required Operating Procedure as in No. 11 above.</i><br><i>A-5 Required Operating Procedure as in No. 14 above.</i> | <i>C1-b Required Operating Procedure as in No. 24 above.</i><br><br><i>K-7 Lease Stipulation – Colville River Special Area in No. 24 above.</i><br><br><i>C-4 Required Operating Procedure as in No. 24 above.</i><br><i>C-3 Required Operating Procedure as in No. 24 above.</i><br><i>C-2 Required Operating Procedure as in No. 24 above.</i><br><i>A-4 Required Operating Procedure as in No. 11 above.</i><br><i>A-5 Required Operating Procedure as in No. 14 above.</i> |
| Effectiveness of <i>Stipulation 25 and ROP C-1b</i> shown in No. 24 above.<br>Effectiveness of <i>Stipulation 25 and Lease Stipulation K-7</i> shown in No. 24 above.<br>Effectiveness of <i>Stipulation 25 and ROP C-4</i> shown in No. 24 above.<br>Effectiveness of <i>Stipulation 25 and ROP C-2</i> shown in No. 24 above.<br>Effectiveness of <i>Stipulation 24 and ROP A-4</i> shown in No. 11 above.<br>Effectiveness of <i>Stipulation 24 and ROP A-5</i> shown in No. 14 above.  |  |  |
| 26. Exploratory drilling is prohibited within 1,200 feet of any known, long-term cabin or campsite, identified by the AO, without written permission of the AO. The AO's decision will be informed by the  | <i>H-1 Required Operating Procedure</i><br><u>Objective:</u> Provide opportunities for participation in planning and decision making to prevent unreasonable conflicts between subsistence uses and oil and gas and  | <i>H-1 Required Operating Procedure</i><br><u>Objective:</u> Provide opportunities for participation in planning and decision making to prevent unreasonable conflicts between subsistence uses and oil and gas and  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|--|---|---|
| <p style="text-align: center;"><b>OIL AND GAS EXPLORATORY DRILLING</b></p> <p>consultation process described in <i>Stipulation 61</i>.</p> |   |   |
|  | <p>related activities.</p> <p><u>Requirement/Standard:</u> Lessee/permittee shall consult directly with affected communities using the following guidelines:</p> <ol style="list-style-type: none"> <li>a. Before submitting an application to the BLM, the applicant shall consult with directly affected subsistence communities, the NSB, and the National Petroleum Reserve - Alaska Subsistence Advisory Panel to discuss the siting, timing and methods of proposed operations. Through this consultation, the applicant shall make every reasonable effort, including such mechanisms as conflict avoidance agreements and mitigating measures, to ensure that proposed activities will not result in unreasonable interference with subsistence activities.</li> <li>b. The applicant shall submit documentation of consultation efforts as part of its operations plan. Applicants should submit the proposed plan of operations to provide an adequate time for review and comment by the National Petroleum Reserve - Alaska Subsistence Advisory Panel and to allow time for formal Government-to-Government consultation with Native Tribal governments. The applicant shall submit documentation of its consultation efforts and a written plan that shows how its activities, in combination with other activities in the area, will be scheduled and located to prevent unreasonable conflicts with subsistence activities. Operations plans must include a discussion of the potential effects of the proposed operation, and the proposed operation in combination with other existing or reasonably foreseeable operations.</li> <li>c. A subsistence plan addressing the following items must be submitted: <ol style="list-style-type: none"> <li>1. A detailed description of the activity(ies) to take place (including</li> </ol> </li> </ol> | <p>related activities.</p> <p><u>Requirement/Standard:</u> Lessee/permittee shall consult directly with affected communities using the following guidelines:</p> <ol style="list-style-type: none"> <li>a. Before submitting an application to the BLM, the applicant shall consult with directly affected subsistence communities, the NSB, and the National Petroleum Reserve - Alaska Subsistence Advisory Panel to discuss the siting, timing and methods of proposed operations. Through this consultation, the applicant shall make every reasonable effort, including such mechanisms as conflict avoidance agreements and mitigating measures, to ensure that proposed activities will not result in unreasonable interference with subsistence activities.</li> <li>b. The applicant shall submit documentation of consultation efforts as part of its operations plan. Applicants should submit the proposed plan of operations to provide an adequate time for review and comment by the National Petroleum Reserve - Alaska Subsistence Advisory Panel and to allow time for formal Government-to-Government consultation with Native Tribal governments. The applicant shall submit documentation of its consultation efforts and a written plan that shows how its activities, in combination with other activities in the area, will be scheduled and located to prevent unreasonable conflicts with subsistence activities. Operations plans must include a discussion of the potential effects of the proposed operation, and the proposed operation in combination with other existing or reasonably foreseeable operations.</li> <li>c. A subsistence plan addressing the following items must be submitted: <ol style="list-style-type: none"> <li>1. A detailed description of the activity(ies) to take place (including</li> </ol> </li> </ol> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <p align="center"><b>OIL AND GAS EXPLORATORY DRILLING</b></p>     |  |  |
|   | <p>the use of aircraft).</p> <ol style="list-style-type: none"> <li>2. A description of how the lessee/permittee will minimize and/or deal with any potential impacts identified by the AO during the consultation process.</li> <li>3. A detailed description of the monitoring effort to take place, including process, procedures, personnel involved and points of contact both at the work site and in the local community.</li> <li>4. Communication elements to provide information on how the applicant will keep potentially affected individuals and communities up-to-date on the progress of the activities and locations of possible, short-term conflicts (if any) with subsistence activities. Communication methods could include holding community meetings, open house meetings, workshops, newsletters, radio and television announcements, etc.</li> <li>5. Procedures necessary to facilitate access by subsistence users to conduct their activities.</li> </ol> <p>In the event that no agreement is reached between the parties, the AO shall consult with the directly involved parties and determine which activities will occur, including the timeframes. During development, monitoring plans must be established for new permanent facilities, including pipelines, to assess an appropriate range of potential effects on resources and subsistence as determined on a case-by-case basis given the nature and location of the facilities. The scope, intensity, and duration of such plans will be established in consultation with the AO and Subsistence Advisory Panel.</p> | <p>the use of aircraft).</p> <ol style="list-style-type: none"> <li>2. A description of how the lessee/permittee will minimize and/or deal with any potential impacts identified by the AO during the consultation process.</li> <li>3. A detailed description of the monitoring effort to take place, including process, procedures, personnel involved and points of contact both at the work site and in the local community.</li> <li>4. Communication elements to provide information on how the applicant will keep potentially affected individuals and communities up-to-date on the progress of the activities and locations of possible, short-term conflicts (if any) with subsistence activities. Communication methods could include holding community meetings, open house meetings, workshops, newsletters, radio and television announcements, etc.</li> <li>5. Procedures necessary to facilitate access by subsistence users to conduct their activities.</li> </ol> <p>In the event that no agreement is reached between the parties, the AO shall consult with the directly involved parties and determine which activities will occur, including the timeframes. During development, monitoring plans must be established for new permanent facilities, including pipelines, to assess an appropriate range of potential effects on resources and subsistence as determined on a case-by-case basis given the nature and location of the facilities. The scope, intensity, and duration of such plans will be established in consultation with the AO and Subsistence Advisory Panel.</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>OIL AND GAS EXPLORATORY DRILLING</b>   |  |  |
| <p><i>Stipulation 26</i> (Moderate) would be more effective than <i>ROP H-1</i> (Low) in preventing unreasonable conflicts between subsistence activities and exploratory drilling near cabins and campsites. The <i>ROP H-1</i> might allow oil and gas activity to occur at closer distances to cabins or campsites than would occur under <i>Stipulation 26</i>. <i>Stipulation 26 and ROP H-1</i> would also reduce impacts on <b>subsistence harvest patterns</b> and would reduce impacts to <b>sociocultural systems</b> as well as address potential environmental justice concerns by providing opportunities for local participation in planning and decision-making.</p>   |  |  |
| <p>27. Permanent or gravel oil and gas facilities including roads shall not be constructed during the exploration phase of oil and gas development.</p>   | <p><b>D-2 Lease Stipulation</b><br/> <u>Objective:</u> Minimize surface impacts from exploratory drilling.<br/> <u>Requirement/Standard:</u> Exploratory drilling shall be limited to temporary facilities such as ice pads, ice roads, ice airstrips, and temporary platforms, unless the lessee demonstrates that construction of permanent facilities such as gravel airstrips, storage pads, and connecting roads is environmentally preferable or necessary to carry out exploration more economically.</p> | <p><b>D-2 Lease Stipulation</b><br/> <u>Objective:</u> Minimize surface impacts from exploratory drilling.<br/> <u>Requirement/Standard:</u> Exploratory drilling shall be limited to temporary facilities such as ice pads, ice roads, ice airstrips, and temporary platforms, unless the lessee demonstrates that construction of permanent facilities such as gravel airstrips, storage pads, and connecting roads is environmentally preferable.</p> |
| <p><i>Stipulation 27 and ROP D-2</i> would differ in their effectiveness to provide protection for <b>soils</b> by reducing damage from permanent facilities constructed during exploration (High in <i>Alternative A</i>); (Moderate in all other alternatives). <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p> <p><i>Stipulation 27 and ROP D-2</i> would differ in their effectiveness to provide protection from permanent facility construction that could potentially disturb the vegetative mat and impact <b>paleontological and cultural resources</b> that are near the surface (High for <i>Alternative A</i> ); (Moderate for all other alternatives). <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p> <p><i>Stipulation 27 and ROP D-2</i> would differ in their effectiveness in protecting <b>water resources and water quality</b> by regulating the construction of permanent roads during exploration (High for <i>Alternative A</i>); (Moderate for all other alternatives). <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p> <p><i>Stipulation 27 and ROP D-2</i> could influence the level of effects on <b>estuarine water quality</b> by limiting exploratory drilling to temporary facilities such as ice pads, but would differ in their effectiveness (High for <i>Alternative A</i>); (Moderate for all other alternatives). <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p> <p><i>Stipulation 27 and ROP D-2</i> would reduce the level of impacts to <b>vegetation</b> by regulating the construction of permanent facilities during exploration, but would have different effectiveness (High for <i>Alternative A</i>); (Moderate for all other alternatives). <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p> <p><i>Stipulation 27 and ROP D-2</i> would benefit <b>freshwater fish habitat and fish</b> by reducing damage to fish habitat from construction of permanent facilities, but would differ in their effectiveness (High for <i>Alternative A</i>); (Moderate for all other alternatives). <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p> <p><i>Stipulation 27 and ROP D-2</i> would differ in their effectiveness in benefiting <b>terrestrial mammals</b> by reducing the amount of habitat disturbed from permanent facilities (High for <i>Alternative A</i>); (Moderate for all other alternatives). <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p> <p><i>Stipulation 27 and ROP D-2</i> would reduce the level of impacts to <b>endangered and threatened species and their habitats</b> by regulating the construction of permanent facilities during exploration, but would have different effectiveness (High for <i>Alternative A</i>); (Moderate for all other alternatives). <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p> <p><i>Stipulation 27 and ROP D-2</i> would differ in their effectiveness in reducing impacts on <b>subsistence use</b> patterns by providing increased protection to fish and fish habitat (High for</p> |  |  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|--|---|---|
| <b>OIL AND GAS EXPLORATORY DRILLING</b>  |   |   |
| <p><i>Alternative A</i>); (Moderate for all other alternatives). <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p> <p><i>Stipulation 27 and ROP D-2</i> would differ in their effectiveness in limiting the impacts that oil and gas exploration and development will have on <b>wild and scenic river</b> values (High for <i>Alternative A</i>); (Moderate for all other alternative)]. <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p> <p><i>Stipulation 27 and ROP D-2</i> would differ in their effectiveness in limiting the impacts that oil and gas exploration and development will have on <b>visual resources</b> (High for <i>Alternative A</i>); (Moderate for all other alternatives). <i>Alternative A</i> would prohibit permanent facilities during exploration; the other alternatives may allow some permanent development.</p>   |   |   |
| 28. Exploratory drilling in river, stream, and lake beds, as determined by the highest high water mark, is prohibited. Exceptions to this stipulation may be authorized by the AO in cases of shallow lakes which freeze to the bottom, do not support significant fish or bird populations, and are hydrologically isolated. Further, such an exception may be granted only if it is environmentally preferable to maintaining the restriction.   | <p><b><i>D-1 Lease Stipulation</i></b></p> <p><u>Objectives</u>: Protect fish-bearing rivers, streams, and lakes from blowouts and minimize alteration of riparian habitat.</p> <p><u>Requirement/Standard</u>: Exploratory drilling is prohibited in rivers and streams, as determined by the active floodplain, and fish-bearing lakes, except where the lessee can demonstrate on a site-specific basis that impacts would be minimal, or it is determined that there is no feasible or prudent alternative.</p> | <p><b><i>D-1 Lease Stipulation</i></b></p> <p><u>Objectives</u>: Protect fish-bearing rivers, streams, and lakes from blowouts and minimize alteration of riparian habitat.</p> <p><u>Requirement/Standard</u>: Exploratory drilling is prohibited in rivers and streams, as determined by the active floodplain, and fish-bearing lakes, except where the lessee can demonstrate on a site-specific basis that impacts would be minimal, or it is determined that there is no feasible or prudent alternative.</p> |
| <p><i>Stipulation 28 and Lease Stipulation D-1</i> would be equally effective in protecting <b>water resources and water quality</b> by prohibiting exploratory drilling in most lakes, streams, and floodplains (Moderate).</p> <p><i>Stipulation 28 and Lease Stipulation D-1</i> would be equally effective in protecting <b>wetlands</b> by prohibiting exploratory drilling in most lakes, streams, and floodplains (Moderate).</p> <p><i>Stipulation 28 and Lease Stipulation D-1</i> would be equally effective in reducing impacts to <b>fish</b> and fish habitat during oil and gas exploratory drilling (Moderate).</p> <p><i>Stipulation 28 and Lease Stipulation D-1</i> would be equally effective in reducing the potential for damage to the riparian habitats used by <b>birds</b> (Moderate).</p> <p><i>Stipulation 28 and Lease Stipulation D-1</i> would be equally effective in reducing the potential for damage to the riparian habitats that are so important to many species of <b>terrestrial mammals</b>, including moose, bear and wolverine by prohibiting exploratory drilling in active floodplains. Disturbance impacts to wolverines and moose would also be reduced (Moderate).</p> <p><i>Stipulation 28 and Lease Stipulation D-1</i> would be equally effective in reducing impacts on <b>subsistence-harvest patterns</b> by providing increased protection for terrestrial mammals (Moderate).</p> <p><i>Stipulation 28 and Lease Stipulation D-1</i> would be equally effective in limiting the impacts that oil and gas exploration and development will have on <b>wild and scenic river</b> values (Moderate).</p> |   |   |
| <b>FACILITY DESIGN AND CONSTRUCTION</b>  |   |   |
| 29. At least 3 years prior to approval of any development plan for leases within the Special Caribou Stipulations Area, the lessee shall design and implement a study of caribou movement, including historical information regarding the distribution and range use of the Teshekpuk Lake caribou, as well as maps of caribou trails within the area. Study data may be gathered concurrent with approved seismic   | <p><b><i>K-5a Lease Stipulation - Teshekpuk Lake Caribou Habitat Area</i></b></p> <p><u>Objective</u>: Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect relief, and migration.</p> <p><u>Requirement/Standard</u>: In the Teshekpuk Lake Caribou</p>   | <p><b><i>K-5a Lease Stipulation - Teshekpuk Lake Caribou Habitat Area</i></b></p> <p><u>Objective</u>: Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect relief, and migration.</p> <p><u>Requirement/Standard</u>: In the Teshekpuk Lake Caribou</p>   |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>   |   |   |
| and exploration activity. The study design shall be approved by the AO in consultation with the Research and Monitoring Team. The study will include a minimum of 3 years of data to assist in providing the information necessary to determine facility design and location, including pipelines, which will be part of the development plan. Lessees may submit individual plans or they may combine with other lessees in the area to do a joint study. Total study funding by all lessees will not exceed \$500,000.  | Habitat Area the following standards will be applied to permitted activities:<br>a. Before authorization of construction of permanent facilities, the lessee shall design and implement a study of caribou movement unless an acceptable study(s) has been completed within the last 10 years. The study shall include a minimum of 3 years of current data on caribou movements and the study design shall be approved by the AO and should provide information necessary to determine facility (including pipeline) design and location. Lessees may submit individual study proposals or they may combine with other lessees in the area to do a single, joint study for the entire Teshekpuk Lake Caribou Habitat Area. Study data may be gathered concurrently with other activities.              | Habitat Area the following standards will be applied to permitted activities:<br>a. Before authorization of construction of permanent facilities, the lessee shall design and implement a study of caribou movement unless an acceptable study(s) has been completed within the last 10 years. The study shall include a minimum of 3 years of current data on caribou movements and the study design shall be approved by the AO and should provide information necessary to determine facility (including pipeline) design and location. Lessees may submit individual study proposals or they may combine with other lessees in the area to do a single, joint study for the entire Teshekpuk Lake Caribou Habitat Area. Study data may be gathered concurrently with other activities.              |
| <i>Alternative A – Stipulation 29 and Alternatives B, C, and D – Lease Stipulation K-5(a)</i> provide the same and equal benefit in effectively reducing but not eliminating impacts to <b>terrestrial mammals</b> , specifically TLH caribou and the <b>subsistence</b> use of these animals, in the area covered by the stipulations, by mandating that lessees conduct a study of caribou movement in the project area. The study results would then be utilized to design or place the facility in a manner that minimizes impacts. The presence of facilities and associated human activities would still result in some disturbance impacts to caribou. Caribou distribution can also vary from year to year (Moderate).  |   |   |
| 30. Causeways and docks are prohibited in river mouths or deltas. Artificial gravel islands and bottom-founded structures are prohibited in river mouths or active stream channels on river deltas, except as provided in the paragraphs below.<br><br>The BLM discourages the use of continuous-fill causeways. Environmentally preferred alternatives for field development include the use of onshore directional drilling, elevated structures, or buried pipelines. Approved causeways shall be designed, sited, and constructed to prevent significant changes to near shore oceanographic circulation patterns and water-quality characteristics (e.g., salinity, temperature, suspended sediments) that result in exceeding water-quality criteria, and must maintain free passage of marine and anadromous fish. | <b>E-3 Lease Stipulation</b><br><u>Objective:</u> Maintain free passage of marine and anadromous fish and protect subsistence use and access to traditional subsistence hunting and fishing.<br><u>Requirement/Standard:</u> Causeways and docks are prohibited in river mouths or deltas. Artificial gravel islands and bottom-founded structures are prohibited in river mouths or active stream channels on river deltas. Causeways, docks, artificial islands, and bottom-founded structures shall be designed to ensure free passage of marine and anadromous fish and to prevent significant changes to nearshore oceanographic circulation patterns and water quality characteristics. A monitoring program may be required to address the objectives of water quality and free passage of fish. | <b>E-3 Lease Stipulation</b><br><u>Objective:</u> Maintain free passage of marine and anadromous fish and protect subsistence use and access to traditional subsistence hunting and fishing.<br><u>Requirement/Standard:</u> Causeways and docks are prohibited in river mouths or deltas. Artificial gravel islands and bottom-founded structures are prohibited in river mouths or active stream channels on river deltas. Causeways, docks, artificial islands, and bottom-founded structures shall be designed to ensure free passage of marine and anadromous fish and to prevent significant changes to nearshore oceanographic circulation patterns and water quality characteristics. A monitoring program may be required to address the objectives of water quality and free passage of fish. |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|--|--|---|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>  |  |   |
| <p>Causeways, docks, artificial gravel islands, and bottom-founded structures may be permitted if the AO, in consultation with appropriate federal, state, and NSB regulatory and resource agencies, determines that a causeway or other structure is necessary for field development, and that no feasible and prudent alternative exists. A monitoring program may be required to address the objectives of water quality and free passage of fish. Additional mitigation shall be required where significant deviation from these objectives occurs.</p>  |  |   |
| <p><i>Alternative A – Stipulation 30 and Alternatives B, C, and D – Lease Stipulation E-3</i> provide the same and equal benefit in effectively reducing but not eliminating impacts to <b>freshwater and marine fish, water resources and water quality, wild and scenic rivers values, subsistence use and access to traditional use areas, and environmental justice</b> concerns, by prohibiting the placement of causeways and docks in river mouths or deltas, and artificial gravel islands and bottom-founded structures in active stream channels, river mouths, and deltas. Elsewhere these facilities must be constructed in a manner that does not restrict or impede fish movements or degrade water quality or flow. These are critical areas for fish and subsistence fisheries (Moderate).</p>   |  |   |
| <p>31. Permanent oil and gas surface occupancy, including but not limited to permanent oil and gas facilities, pads, rigs, platforms, gravel roads, airstrips, pipelines, gravel or other material extraction sites, and exploration and delineation drilling facilities are prohibited in the Teshekpuk Lake Surface Protection Area (specifically, T. 13 N., Rs. 3-7 W., U.M.; Secs. 1-6, 8-16, 21-25, 36, T. 13 N., R. 8 W., U.M.; T. 14 N., Rs. 1-2 E. and Rs. 1-8 W., U.M.; Secs. 1-2, 11-14, T. 14 N., R. 9 W., U.M.; T. 15 N., Rs. 2-8 W., U.M.; Secs. 1-3, 7-30, 35-36, T. 15 N., R. 9 W., U.M.; T. 16 N., Rs. 2-8 W., U.M.; Secs. 1-6, 8-17, 21-27, 34-36, T. 16 N., R. 9 W., U.M.; T. 17 N., Rs. 1-9 W., U.M.; and T. 18 N., Rs. 2-8 W., U.M.). No exceptions will be granted to this stipulation.</p> | <p><b><i>K-3 Stipulation - Teshekpuk Lake</i></b><br/>           Teshekpuk Lake contains sensitive biological resources and/or subsistence concerns. The standard(s) for exploration and development activities are set high with the burden of proof resting with the lessee to demonstrate to the AO that granting an approval for exploration and/or development is warranted.<br/> <u>Objective:</u> Protect fish and wildlife habitat, preserve air and water quality, and minimize impacts to traditional subsistence activities and historic travel routes on Teshekpuk Lake.<br/> <u>Requirement/Standard (Exploration):</u> Requests for approval of any activities must be submitted in advance and must be accompanied by evidence and documentation that demonstrates to the satisfaction of the AO that the actions or activities meet all of the following criteria:</p> <ol style="list-style-type: none"> <li>Exploration activities will not unreasonably conflict with traditional subsistence uses or significantly impact seasonally concentrated fish and wildlife resources.</li> <li>There is adequate spill response capability to effectively respond during periods of broken ice and/or open water or, the availability of</li> </ol> | <p><b><i>K-3 Stipulation - Teshekpuk Lake Shoreline</i></b><br/>           (Note: Under the Proposed Action Teshekpuk Lake would be deferred from additional oil and gas leasing for a period of 10 years).<br/> <u>Objective:</u> Minimize the disruption of natural flow patterns and changes to water quality; the disruption of natural functions resulting from the loss or change to vegetative and physical characteristics of this large and regionally significant deep water lake; the loss of cultural and paleontological resources; impacts to subsistence cabins, campsites and associated activities; and to protect fish and wildlife habitat including important insect relief areas.<br/> <u>Requirement/Standard:</u> Permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines, are prohibited within ¼ mile of the ordinary high water mark of Teshekpuk Lake – No Exceptions.</p> <p><b><i>K-4 Lease Stipulation - Goose Molting Area</i></b><br/> <u>Objective:</u> Minimize disturbance to molting geese and loss of goose molting habitat in and around lakes in the Goose Molting Area.<br/> <u>Requirement/Standard (General):</u> Within the Goose</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>                           |   |   |
|   | <p>alternative methods to prevent well blowouts during periods when adequate response capability cannot be demonstrated. Such alternative methods may include improvements in blowout prevention technology, equipment, and/or changes in operational procedures, and “top-setting” of hydrocarbon-bearing zones.</p> <p>c. Reasonable efforts to avoid or minimize impacts related to oil spill response activities, including vessel, aircraft, and pedestrian traffic will be made to minimize additional impacts or further compounding of “direct spill”-related impacts on area resources and subsistence uses.</p> <p>d. The location of exploration and related activities shall be sited so as to not pose a hazard to navigation by the public using high-use traditional subsistence-related travel routes on Teshekpuk Lake, recognizing that marine and near-shore travel routes change over time, subject to shifting environmental conditions.</p> <p><u>Requirement/Standard (Development):</u> With the exception of linear features such as pipelines and causeways, permanent oil and gas platforms or production equipment would not be permitted on or under the water within <math>\frac{3}{4}</math> mile of the shoreline, and on land <math>\frac{1}{4}</math> mile landward of the shoreline of Teshekpuk Lake. Activities will only be permitted if they can meet all the following criteria:</p> <p>a. Design and construction of facilities shall minimize impacts to traditional subsistence uses, travel corridors, and seasonally concentrated fish and wildlife resources.</p> <p>b. Daily operational activities, including use of support vehicles, watercraft, and aircraft traffic, alone or in combination with other past, present, and reasonably foreseeable activities, shall be conducted to minimize impacts to traditional subsistence uses, travel corridors, and seasonally concentrated fish and wildlife</p> | <p>Molting Area no permanent oil and gas facilities, except for pipelines, would be allowed on the approximately 216,000 acres illustrated on <a href="#">Map 2-4</a>. No exceptions will be considered.</p> <p><u>Requirement/Standard (Exploration):</u> In goose molting habitat area exploratory drilling shall be limited to temporary facilities such as ice pads, ice roads, ice airstrips, and temporary platforms, unless the lessee demonstrates that construction of permanent facilities (outside the identified Goose Molting No Surface Occupancy Areas) such as gravel airstrips, storage pads, and connecting roads is environmentally preferable (Also see <i>Stipulation K-11</i> regarding allowable surface disturbance). In addition, the following standards will be followed for permitted activities:</p> <p>a. From May 20 through August 20 exploratory drilling and associated activities are prohibited. The intent of this rule is to restrict exploration drilling during the period when geese are present.</p> <p>b. Water extraction from any lake used by molting geese shall not alter hydrological conditions that could adversely affect identified goose-feeding habitat along lakeshore margins. Considerations will be given to seasonal use by operators (generally in winter) and geese (generally in summer), as well as recharge to lakes from the spring snowmelt.</p> <p>c. Oil and gas exploration activities will avoid alteration (e.g., damage or disturbance of soils, vegetation, or surface hydrology) of critical goose-feeding habitat types along lakeshore margins (grass/sedge/moss), as identified by the AO in consultation with the USFWS.</p> <p>d. Aircraft use (including fixed wing and helicopter) by oil and gas lessees and all other users shall be minimized, and possibly suspended, in and around Goose Molting Area lakes from May 20 through August 20 unless doing so would endanger human life or violate</p> |



Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|--|---|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>                           |  |   |
|   | <p>resources.</p> <ul style="list-style-type: none"> <li>c. The location of oil and gas facilities, including artificial islands, platforms, associated pipelines, ice or other roads, bridges or causeways, shall be sited and constructed so as to not pose a hazard to navigation by the public using traditional high-use subsistence-related travel routes into and through Teshekpuk Lake.</li> <li>d. Demonstrated year-round oil spill response capability, including the capability of adequate response during periods of broken ice or open water, or the availability of alternative methods to prevent well blowouts during periods when adequate response capability cannot be demonstrated. Such alternative methods may include seasonal drilling restrictions, improvements in blowout prevention technology, equipment and/or changes in operational procedures, and “top-setting” of hydrocarbon-bearing zones.</li> <li>e. Reasonable efforts will be made to avoid or minimize impacts related to oil spill response activities, including vessel, aircraft, and pedestrian traffic that add to impacts or further compound “direct spill” related impacts on area resources and subsistence uses.</li> </ul> <p><b><i>K-4 Lease Stipulation - Goose Molting Area</i></b><br/> <u>Objective:</u> Minimize disturbance to molting geese and loss of goose molting habitat in and around lakes in the Goose Molting Area.<br/> <u>Requirement/Standard:</u> In goose molting habitats, the following standards will be followed for permitted activities:</p> <ul style="list-style-type: none"> <li>a. Water extraction from any lake used by molting geese shall not alter hydrological conditions that could adversely affect identified goose-feeding habitat along lakeshore margins. Considerations will be given to seasonal use by operators (generally in winter) and geese (generally in summer), as well as recharge to</li> </ul> | <p>safe flying practices.</p> <p><u>Requirement/Standard (Development):</u> In Goose Molting Area, the following standards will be followed for permitted activities:</p> <ul style="list-style-type: none"> <li>a. Major construction activities using heavy equipment (e.g., sand/gravel extraction and transport, pipeline and pad construction, but not drilling from existing production pads) shall be suspended within Goose Molting Area from May 20 through August 20, unless approved by the AO in consultation with the appropriate federal, state, and NSB regulatory and resource agencies. The intent of this rule is to restrict activities that would disturb molting geese during the period when geese are present.</li> <li>b. Water extraction from any lakes used by molting geese shall not alter hydrological conditions that could adversely affect identified goose-feeding habitat along lakeshore margins. Considerations will be given to seasonal use by operators (generally in winter) and geese (generally in summer), as well as recharge to lakes from the spring snowmelt.</li> <li>c. Oil and gas activities will avoid altering (i.e., damage or disturbance of soils, vegetation, or surface hydrology) critical goose-feeding habitat types along lakeshore margins (grass/sedge/moss).</li> <li>d. Permanent oil and gas facilities (including gravel roads, pads, and airstrips, but excluding pipelines) and material sites will be sited outside the identified NSO areas.</li> <li>e. Between May 20 and August, 20 within the Goose Molting Area, oil and gas facilities shall incorporate features (e.g., temporary fences, siting/orientation) that screen/shield human activity from view of any Goose Molting Area lake, as identified by the AO in consultation with appropriate federal, state, and NSB regulatory and resource agencies.</li> </ul> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>                           |  |  |
|   | <p>lakes from the spring snowmelt.</p> <p>b. From May 20 through August 20 drilling other than from current production pads is prohibited. The intent of this rule is to restrict exploration drilling during the period when geese are present. There are no seasonal restrictions on development or exploration drilling for fields in operation.</p> <p>c. Oil and gas exploration and development activities will avoid alteration (e.g., damage or disturbance of soils, vegetation, or surface hydrology) of critical goose-feeding habitat types along lakeshore margins (grass/sedge/moss), as identified by the AO in consultation with the USFWS.</p> <p>d. Permanent oil and gas facilities (including gravel roads, pads, and airstrips but excluding pipelines) and material sites will be sited to meet the stated objective. With the exception of linear features such as pipelines and causeways, permanent oil and gas platforms or production equipment would not be permitted on or under the water within ¾ mile of the shoreline, and on land ¼ mile landward of the shoreline of goose molting lakes. Goose Molting Area lakes shall be identified by the AO in consultation with appropriate federal, state, and NSB regulatory and resource agencies.</p> <p>e. Oil and gas facility layout located within 1½ miles of a Goose Molting Area lake from May 20 through August 20 shall incorporate features (e.g., temporary fences, siting/orientation) that screen/shield human activity from view of any Goose Molting Area lake, as identified by the AO in consultation with appropriate federal, state, and NSB regulatory and resource agencies.</p> <p>f. Major construction activities using heavy equipment (e.g., sand/gravel extraction and transport, pipeline and pad construction, but not</p> | <p>f. Strategies to minimize ground traffic will be implemented from May 20 through August 20. These strategies may include limiting trips, use of convoys, different vehicle types, etc. to the extent practicable.</p> <p>g. Aircraft use (including fixed wing and helicopter) within the Goose Molting Area ,by authorized users shall be restricted from May 20 to August 20 unless doing so would endanger human life or violate safe flying practices. Restrictions may include 1) limited to two round-trip flights/week, and 2) restricted to flight corridors will be established by the BLM after discussions with appropriate federal, state, and NSB regulatory and resource agencies. Note: This site-specific stipulation is not intended to restrict flights necessary to survey wildlife to gain information necessary to meet the stated objective of this stipulation. However, flights necessary to gain this information would be restricted to the minimum necessary to collect such data.</p> <p><b><i>K-5 Lease Stipulation - Teshekpuk Lake Caribou Habitat Area</i></b><br/> <u>Objective:</u> Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect-relief, and migration.<br/> <u>Requirement/Standard:</u> In the Teshekpuk Lake Caribou Habitat Area the following standards will be applied to permitted activities:</p> <p>a. Before authorization of construction of permanent facilities (outside NSO areas established in other stipulations), the lessee shall design and implement a study of caribou movement unless an acceptable study(s) has been completed within the last 10 years. The study shall include a minimum of 3 years of</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>                           |   |   |
|   | <p>drilling from existing production pads) shall be suspended within 1½ mile of the Goose Molting Area lakes from May 20 through August 20, unless approved by the AO in consultation with the appropriate federal, state, and NSB regulatory and resource agencies.</p> <p>g. Strategies to minimize ground traffic will be implemented from May 20 through August 20. These strategies may include limiting trips, use of convoys, different vehicle types, etc. to the extent practicable.</p> <p>h. Nonessential helicopter overflights by oil and gas lessees and all other users shall be reviewed and may be suspended in and around Goose Molting Area lakes from May 20 through August 20.</p> <p>i. Within the Goose Molting Area, use of fixed-wing aircraft by authorized users shall be restricted from May 20 to August 20. Restrictions may include 1) limited to two round-trip flights/week, and 2) restricted to flight corridors will be established by the BLM after discussions with appropriate federal, state, and NSB regulatory and resource agencies. Note: This site-specific stipulation is not intended to restrict flights necessary to survey wildlife to gain information necessary to meet the stated objective of this stipulation. However, flights necessary to gain this information would be restricted to the minimum necessary to collect such data.</p> <p><b><i>K-5 Lease Stipulation - Teshekpuk Lake Caribou Habitat Area</i></b><br/> <u>Objective:</u> Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect-relief, and migration.<br/> <u>Requirement/Standard:</u> In the Teshekpuk Lake Caribou Habitat Area the following standards will be applied to</p> | <p>current data on caribou movements and the study design shall be approved by the AO and should provide information necessary to determine facility (including pipeline) design and location. Lessees may submit individual study proposals or they may combine with other lessees in the area to do a single, joint study for the entire Teshekpuk Lake Caribou Habitat Area. Study data may be gathered concurrently with other activities.</p> <p>b. Exploratory drilling will be allowed only from current production pads or platforms sited within a lake body from May 20 through August 20 in the Teshekpuk Lake Caribou Habitat Area, in compliance with setbacks and restrictions set forth in other stipulations.</p> <p>c. Within the Teshekpuk Lake Caribou Habitat Area, lessees shall orient linear corridors when laying out oil field developments to the extent practicable, to address migration and corralling effects and to avoid loops of road and/or pipeline that connect facilities.</p> <p>d. Ramps over pipelines, buried pipelines, or pipelines buried under the road may be required by the AO, after consultation with appropriate federal, state, and NSB regulatory and resource agencies, in the Teshekpuk Lake Caribou Habitat Area where pipelines potentially impede caribou movement.</p> <p>e. The following ground-traffic restrictions shall apply to permanent oil and gas-related roads in the areas and time periods indicated:</p> <ol style="list-style-type: none"> <li>1. Within the Teshekpuk Lake Caribou Habitat Area, from May 20 through August 20, traffic speed shall not exceed 15 miles per hour when caribou are within ½ mile on the road. Additional strategies may include limiting trips, using convoys, using different vehicle types, etc., to the extent practicable.</li> </ol> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|--|---|
| <p align="center"><b>FACILITY DESIGN AND CONSTRUCTION</b></p>     |  |   |
|   | <p>permitted activities:</p> <ol style="list-style-type: none"> <li>Before authorization of construction of permanent facilities, the lessee shall design and implement a study of caribou movement unless an acceptable study(s) has been completed within the last 10 years. The study shall include a minimum of 3 years of current data on caribou movements and the study design shall be approved by the AO and should provide information necessary to determine facility (including pipeline) design and location. Lessees may submit individual study proposals or they may combine with other lessees in the area to do a single, joint study for the entire Teshekpuk Lake Caribou Habitat Area. Study data may be gathered concurrently with other activities.</li> <li>Exploratory drilling will be allowed only from current production pads or platforms sited within a lake body from May 20 through August 20 in the Teshekpuk Lake Caribou Habitat Area, in compliance with setback requirements set forth in other stipulations.</li> <li>Within the Teshekpuk Lake Caribou Habitat Area, lessees shall orient linear corridors when laying out oil field developments to the extent practicable, to address migration and corralling effects and to avoid loops of road and/or pipeline that connect facilities.</li> <li>Ramps over pipelines, buried pipelines, or pipelines buried under the road may be required by the AO, after consultation with appropriate federal, state, and NSB regulatory and resource agencies, in the Teshekpuk Lake Caribou Habitat Area where pipelines potentially impede caribou movement.</li> <li>The following ground-traffic restrictions shall apply to permanent oil and gas-related roads in the areas and time periods indicated: <ol style="list-style-type: none"> <li>Within the Teshekpuk Lake Caribou</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>The lessee or a contractor shall observe caribou movement from May 20 through August 20. Based on these observations, traffic will be stopped temporarily to allow a crossing by 10 or more caribou. Sections of road will be evacuated when migrations of large numbers of caribou appears to imminent.</li> <li>Major equipment, materials, and supplies to be used at oil and gas work sites in the Teshekpuk Lake Caribou Habitat Area shall be stockpiled prior to or after the period of May 20 through August 20 to minimize road traffic during that period.</li> <li>Use of aircraft larger than a Twin Otter by authorized users of the Planning Area, including oil and gas lessees, from May 20 through August 20 within the Teshekpuk Lake Caribou Habitat Area, shall be for emergency purposes only.</li> <li>Fixed-wing aircraft takeoffs and landings by authorized users of the Planning Area shall be limited to an average of one round-trip flight per day from May 20 through June 20, at aircraft facilities within the Teshekpuk Lake Caribou Habitat Areas.</li> <li>Aircraft shall maintain a minimum height of 1,000 feet AGL (except for takeoffs and landings) over caribou winter ranges from October 1 through May 1, and 2,000 feet AGL over the Teshekpuk Lake Caribou Habitat Area from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices.</li> </ol> <p><b>K-6 Stipulation - Coastal Area</b><br/> <u>Objective:</u> Minimize hindrance or alteration of caribou movement within caribou coastal insect-relief areas; to prevent contamination of marine waters; loss of important</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|---|--|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>                           |   |  |
|   | <p>Habitat Area, from May 20 through August 20, traffic speed shall not exceed 15 miles per hour when caribou are within ½ mile on the road. Additional strategies may include limiting trips, using convoys, using different vehicle types, etc., to the extent practicable.</p> <ol style="list-style-type: none"> <li>The lessee or a contractor shall observe caribou movement from May 20 through August 20. Based on these observations, traffic will be stopped temporarily to allow a crossing by 10 or more caribou. Sections of road will be evacuated when migrations of large numbers of caribou appears to imminent.</li> <li>Major equipment, materials, and supplies to be used at oil and gas work sites in the Teshekpuk Lake Caribou Habitat Area shall be stockpiled prior to or after the period of May 20 through August 20 to minimize road traffic during that period.</li> <li>Use of aircraft larger than a Twin Otter by authorized users of the Planning Area, including oil and gas lessees, from May 20 through August 20 within the Teshekpuk Lake Caribou Habitat Area, shall be for emergency purposes only.</li> <li>Fixed-wing aircraft takeoffs and landings by authorized users of the Planning Area shall be limited to an average of one round-trip flight per day from May 20 through June 20, at aircraft facilities within the Teshekpuk Lake Caribou Habitat Areas.</li> <li>Aircraft shall maintain a minimum height of 1,000 feet AGL (except for takeoffs and landings) over caribou winter ranges from October 1 through May 1, and 2,000 feet AGL over the Teshekpuk Lake Caribou Habitat Area from May 20 through August</li> </ol> | <p>bird habitat; alteration or disturbance of shoreline marshes; and impacts to subsistence resources activities.</p> <p><u>Requirement/Standard:</u> In the Coastal Area, permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines established to support exploration and development activities shall be located at least ¾ mile inland from the coastline to the extent practicable. Where, as a result of technological limitations, economics, logistics, or other factors, a facility must be located within ¾ mile inland of the coastline, the practicality of locating the facility at previously occupied sites such as Camp Lonely, various Husky/USGS drill sites, and Distant Early Warning (DEW)-Line sites, shall be considered. Use of existing sites within ¾ mile of the coastline shall also be acceptable where it is demonstrated that use of such sites will reduce impacts to shorelines or otherwise be environmentally preferable. All lessees/permittees involved in activities in the immediate area must coordinate use of these new or existing sites with all other prospective users. Before conducting open water activities, the lessee shall consult with the Alaska Eskimo Whaling Commission, the Nuiqsut Whaling Association, and the NSB to minimize impacts to the fall and spring subsistence whaling activities of the communities of the North Slope.</p> <p><b><i>K-9 Lease Stipulation – Caribou Movement Corridor</i></b></p> <p><u>Objective:</u> Minimize disturbance and hindrance of caribou, or alteration of caribou movements (that are essential for all season use, including calving and rearing, insect-relief, and migration) in the area extending from the eastern shore of Teshekpuk Lake to approximately 4 miles eastward towards the Kogru Inlet.</p> <p><u>Requirement/Standard:</u> Within the Caribou Movement Corridor, no permanent oil and gas facilities, including pipelines, would be allowed on the approximately 16,000 acres illustrated on <a href="#">Map 2-4</a>. Note: In addition to the general stipulations and ROPs, site-specific stipulations, i.e. <i>Stipulations K-3, K-4, K-5, and K-11</i> would also apply.</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|---|--|
| <p align="center"><b>FACILITY DESIGN AND CONSTRUCTION</b></p>     |   |  |
|   | <p align="center">20, unless doing so would endanger human life or violate safe flying practices.</p> <p><b><i>K-6 Stipulation – Coastal Area</i></b><br/> <u>Objective:</u> Minimize hindrance or alteration of caribou movement within caribou coastal insect-relief areas; to prevent contamination of marine waters; loss of important bird habitat; alteration or disturbance of shoreline marshes; and impacts to subsistence resources activities.<br/> <u>Requirement/Standard:</u> In the Coastal Area, permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines established to support exploration and development activities shall be located at least ¾ mile inland from the coastline to the extent practicable. Where, as a result of technological limitations, economics, logistics, or other factors, a facility must be located within ¾ mile inland of the coastline, the practicality of locating the facility at previously occupied sites such as Camp Lonely, various Husky/USGS drill sites, and Distant Early Warning (DEW)-Line sites, shall be considered. Use of existing sites within ¾ mile of the coastline shall also be acceptable where it is demonstrated that use of such sites will reduce impacts to shorelines or otherwise be environmentally preferable. All lessees/permittees involved in activities in the immediate area must coordinate use of these new or existing sites with all other prospective users. Before conducting open water activities, the lessee shall consult with the Alaska Eskimo Whaling Commission, the Nuiqsut Whaling Association, and the NSB to minimize impacts to the fall and spring subsistence whaling activities of the communities of the North Slope.</p> | <p><b><i>K-10 Lease Stipulation – Southern Caribou Calving Area</i></b><br/> <u>Objective:</u> Minimize disturbance and hindrance of caribou, or alteration of caribou movements (that are essential for all season use, including calving and post calving, and insect-relief) in the area south/southeast of Teshekpuk Lake:<br/> <u>Requirement/Standard:</u> Within the Southern Caribou Calving Area, no permanent oil and gas facilities, excluding pipelines, would be allowed on the approximately 141,000 acres illustrated on <a href="#">Map 2-4</a>. Note: In addition to the general stipulations and ROPs, site specific <i>Stipulations K-4, K-5, K-6, and K-11</i> would also apply.</p> <p><b><i>K-11 Lease Stipulation: Lease Tracts A-G</i></b><br/> <u>Objective:</u> To protect key surface resources and subsistence resources/activities resulting from permanent oil and gas development and associated activities.<br/> <u>Requirement Standard:</u> Surface disturbance is limited to 300 acres within the following described lease tracts (<a href="#">Map 2-4</a>); this does not include surface disturbance activities from pipeline construction.</p> <p>a. Total Acreage: <del>49,090</del>: <u>39,418 acres</u> = No Surface Occupancy for Permanent Oil and Gas facilities excluding pipelines <u>9,672 acres</u> = Area open to development subject to general and site specific stipulations and required operating procedures. The total development footprint cannot exceed <u>300 acres (0.6% of total acreage)</u> within the 9,672 acres.</p> <p>b. Total Acreage: <del>45,953</del>: <u>40,728 acres</u> = No Surface Occupancy for Permanent Oil and Gas facilities excluding pipelines <u>5,225 acres</u> = Area open to development subject to general stipulations and required operating procedures. The total development footprint cannot exceed <u>300 acres (0.6% of total acreage)</u> within the</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|--|---|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>                           |  |   |
|   |  | <p>5,225 acres.</p> <p>c. Total Acreage: <u>53,545</u>: <u>48,828 acres</u> = No Surface Occupancy for Permanent Oil and Gas facilities excluding pipelines <u>4,717 acres</u> = Area open to development subject to general stipulations and required operating procedures. The total development footprint cannot exceed <u>300 acres (0.5% of total acreage)</u> within the 4,717 acres.</p> <p>d. Total Acreage: <u>51,752</u>: <u>29,094 acres</u> = No Surface Occupancy for Permanent Oil and Gas facilities excluding pipelines <u>22,658 acres</u> = Area open to development subject to general stipulations and required operating procedures. The total development footprint cannot exceed <u>300 acres (0.5% of total acreage)</u> within the 22,658 acres.</p> <p>e. Total Acreage: <u>56,829</u>: <u>46,986 acres</u> = No Surface Occupancy for Permanent Oil and Gas facilities excluding pipelines <u>9,843 acres</u> = Area open to development subject to general stipulations and required operating procedures. The total development footprint cannot exceed <u>300 acres (0.5% of total acreage)</u> within the 9,843 acres.</p> <p>f. Total Acreage: <u>57,959</u>: <u>46,364 acres</u> = No Surface Occupancy for Permanent Oil and Gas facilities excluding pipelines <u>11,595 acres</u> = Area open to development subject to general stipulations and required operating procedures. The total development footprint cannot exceed <u>300 acres (0.5% of total acreage)</u> within the 11,595 acres.</p> <p>g. Total Acreage: <u>57,959</u>: <u>46,364 acres</u> = No Surface Occupancy for Permanent Oil and Gas facilities excluding pipelines <u>11,595 acres</u> = Area open to development subject to general stipulations and required operating procedures. The total development footprint cannot exceed <u>300 acres (0.5% of total acreage)</u> within the</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action |
|--|--|--|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>  |  |  |
|  |  | 11,595 acres.  |
| <p><i>Alternative A – Stipulation 31 and Alternatives B, C, and D – Lease Stipulation K-3, K-4, K-5</i> provide similar benefit in effectively reducing impacts to soils, freshwater fishes and their habitat, birds and bird habitats, terrestrial mammals, endangered and threatened species, water quality, in the area covered by the stipulations, by prohibiting the construction of permanent oil and gas facilities in the area covered by the stipulations. However, other elements of each alternative, i.e. No Surface Occupancy restrictions, and/or management decisions that make lands available or unavailable to oil and gas leasing, provide a different means for resource protection. Therefore, while the mitigations are comparable in providing protection to this resource, this is not to say that the overall level of protection under the various <i>Alternatives</i> is necessarily equal or the same based on management decisions in the planning area. Please see <a href="#">Table 2.3</a> for a discussion regarding the comparison of impacts among alternatives. Gravel pads and roads can only be constructed for permanent facilities, therefore prohibition of permanent facilities avoids the impacts to soils, vegetation and the birds and mammals that utilize the vegetation that would be covered by gravel. Permanent facilities are also the sites of human activity which can disturb <i>Lease Stipulation K-3 of Alternatives B and C</i> may be more slightly less effective than <i>Stipulation 31 (Alternative A)</i> and <i>Lease Stipulation K-3 (Alternative D)</i> as it exempts pipelines and other linear oil and gas facilities while the others do not (Moderate).</p> <p><i>Alternative A Stipulation 31 and Alternatives B, C, and D Lease Stipulation K-3</i> could provide additional protection of <b>birds, threatened and endangered species, bird</b> habitats and avoid disturbance of seasonally concentrated birds, by prohibiting oil and gas exploration activity between May 20 - August 20, requiring adequate year-round spill response capability including during periods of broken ice or alternative methods to prevent oil spills, requiring that facilities minimize impacts to seasonally concentrated birds, and requiring that daily activities are conducted to minimize impacts to seasonally concentrated birds.</p> <p><i>Alternative A – Stipulation 31 and Alternatives B, C, and D – Lease Stipulation K-4</i> – provide similar benefit in effectively reducing impacts to soils, birds and bird habitats, and water quality, in the area covered by the stipulations, by prohibiting the construction of permanent oil and gas facilities in the area covered by the stipulations. However, other elements of each alternative, i.e. No Surface Occupancy restrictions, and/or management decisions that make lands available or unavailable to oil and gas leasing, provide a different means for resource protection. Therefore, while the mitigations are comparable in providing protection to this resource, this is not to say that the overall level of protection under the various <i>Alternatives</i> is necessarily equal or the same based on management decisions in the planning area. Please see <a href="#">Table 2.3</a> for a discussion regarding the comparison of impacts among alternatives. <i>Lease Stipulation K-3 of Alternatives B and C</i> may be more slightly less effective than <i>Stipulation 31 (Alternative A)</i> and <i>Lease Stipulation K-3 (Alternative D)</i> as it exempts pipelines and other linear oil and gas facilities while the others do not (Moderate).</p> <p><i>Alternative A – Stipulation 31 and Alternatives B, C, and D – Lease Stipulation K-5</i> – provide similar benefit in effectively reducing impacts to soils, bird habitats, and water quality, in the area covered by the stipulations, by prohibiting the construction of permanent oil and gas facilities in the area covered by the stipulations. However, other elements of each alternative, i.e. No Surface Occupancy restrictions, and/or management decisions that make lands available or unavailable to oil and gas leasing, provide a different means for resource protection. Therefore, while the mitigations are comparable in providing protection to this resource, this is not to say that the overall level of protection under the various <i>Alternatives</i> is necessarily equal or the same based on management decisions in the planning area. Please see <a href="#">Table 2.3</a> for a discussion regarding the comparison of impacts among alternatives. <i>Lease Stipulation K-3 of Alternatives B and C</i> may be more slightly less effective than <i>Stipulation 31 (Alternative A)</i> and <i>Lease Stipulation K-3 (Alternative D)</i> as it exempts pipelines and other linear oil and gas facilities while the others do not (Moderate).</p> <p><i>Alternative A Stipulation 31 and Alternatives B, C, and D Lease Stipulation K-3</i> would be more effective than <i>Lease Stipulation K-3</i> in protecting soils in Teshekpuk Lake Surface Protection Area because no permanent oil and gas facilities would be allowed in the TLSP Area under <i>Stipulation 31</i>, but would permanent oil and gas facilities would be allowed in the TLSP Area under <i>Lease Stipulation K-3</i>. <i>Lease Stipulation K-3</i> for the Proposed Action would be more protective than <i>Lease Stipulation K-3 for the Alternatives B and C</i> for Teshekpuk Lake, as the lake would be deferred from leasing under the Proposed Action.</p> <p><i>Alternative A Stipulation 31 and Alternatives B, C, and D Lease Stipulation K-3</i> could reduce impacts to <b>endangered and threatened species</b> by protecting eider habitats and avoiding disturbance of seasonally concentrated eiders, molting geese, and other <b>birds</b> by 1) prohibiting oil and gas exploration activity between May 20-August 20) requiring adequate year round spill response capability including during periods of broken ice or alternative methods to prevent oil spills (K-3 b), requiring that facilities minimize impacts to seasonally concentrated birds (K-3 f), and requiring that daily activities are conducted to minimize impacts to seasonally concentrated eiders (K-3 g). This reduces the potential for impacts to freshwater and marine fishes and their habitat from oil and gas operations.</p> <p><i>Stipulation 31 and Lease Stipulation K-4</i> would provide benefit in the minimization of impacts to birds, and endangered species, particularly eiders, and nesting and molting</p> |  |  |



Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|--|---|---|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>  |   |   |
| <p>waterfowl, by prohibiting construction of permanent oil and gas facilities along the shoreline of the goose molting lakes and oil and gas drilling within between May 20 and August 20 except at existing pads. Human activity at facilities within 1.5 miles of the lakes must be shielded from view from the lake. These measures should reduce disturbance to molting waterfowl including brant, eiders, and other species during the molting periods when they are most susceptible. <i>Stipulation 31 and Lease Stipulation K-4</i> would reduce impacts to <b>birds</b> by reducing habitat loss or disturbance of nesting and brood-rearing brant by requiring pre-construction aerial surveys of proposed development sites and surrounding area, and by prohibiting development or curtailing activities within 1/2 mi of deep water lakes.</p> <p><i>Alternative A Stipulation 31 and Alternatives B, C, and D Lease Stipulation K-5</i> would greatly reduce but not totally eliminate impacts to <b>terrestrial mammals</b>, specifically TLH caribou. (Moderate) The presence of facilities and associated human activity would still result in disturbance impacts to caribou. Caribou distribution can vary from year to year depending upon many factors. What appears to be the best design and location based on a minimum of three years of data may not hold true over the life of the facility or may be altered as additional infrastructure is constructed in other areas.</p> <p><i>Alternative A Stipulation 31 and Alternatives B, C, and D Lease Stipulation K-6</i> would not reduce the acreage of <b>vegetation</b> impacted by an action, but might shift the impacts from more valuable <b>wetland</b> or riparian vegetation types to habitats perceived as lesser in value (Moderate).</p> <p><i>Alternative A Stipulation 31 and Alternatives B, C, and D Lease Stipulation K-6</i> provide equal benefit in reduction of potential impacts to <b>soils, vegetation, wetlands, terrestrial mammals, marine mammals, birds, and fish</b> by prohibiting permanent oil and gas facilities within 3/4 mi inland from the coastline to the extent practicable. This stipulation would thereby reduce the potential for accidental spills to enter coastal/marine waters where marine fishes might be impacted. They would increase the opportunity for oil spill response and cleanup well before they enter either riverine or coastal/marine fish habitats; consequently, they reduce the potential for a spill to adversely impact marine fishes. The stipulations would reduce impacts on subsistence harvest patterns by providing increased protection to caribou, birds and marine fish and mammals. They would help to prevent large fuel or crude oil spills, and consequently reduce the small potential for impacts to paleontological and cultural resources from spill cleanup. They would protect subsistence resources and access in Kogru Inlet, and other coastal areas. This protection of subsistence pursuits as set down in ANILCA (P.L. 96-487); helps to guard against potential impacts to <b>subsistence-harvest patterns, sociocultural</b> disruptions that then fall under the purview of environmental justice.</p> |   |   |
| <p>32. Lessees shall use maximum economically feasible extended-reach drilling for production drilling to minimize the number of pads and the network of roads between pads. New developments shall share facilities with existing development when prudent and technically feasible. All oil and gas facilities, except airstrips, docks, and seawater-treatment plants, will be co-located with drill pads. If possible, airstrips will be integrated with roads. Given the paucity of gravel sites in the planning area and the cost of transporting gravel from outside the planning area, lessees are encouraged to implement gravel-reduction technologies e.g., insulated or pile-supported pads.</p>   | <p><b><i>E-5 Required Operating Procedure</i></b><br/> <u>Objective:</u> Minimize impacts of the development footprint.<br/> <u>Requirement/Standard:</u> Facilities shall be designed and located to minimize the development footprint to the maximum extent practicable considering environmental, economic, and social impacts. <u>Note: Where aircraft traffic is a concern, consideration shall be given to balancing gravel pad size and available supply storage capacity with potential reductions in the use of aircraft to support oil and gas operations.</u></p> | <p><b><i>E-5 Required Operating Procedure</i></b><br/> <u>Objective:</u> Minimize impacts of the development footprint.<br/> <u>Requirement/Standard:</u> Facilities shall be designed and located to minimize the development footprint to the maximum extent practicable considering environmental, economic, and social impacts. <u>Note: Where aircraft traffic is a concern, consideration shall be given to balancing gravel pad size and available supply storage capacity with potential reductions in the use of aircraft to support oil and gas operations.</u></p> |
| <p><i>Alternative A Stipulation 32 and Alternatives B, C, and D - ROP E-5</i> would be equally effective in minimizing effects on <b>soils, paleontological and cultural resources, water resources and water quality, vegetation, wetlands, and fish and fish habitat</b> by minimizing the development footprint and amount of gravel use (Moderate). <i>Stipulation 32 and ROP E-5</i> would be equally effective in minimizing effects on terrestrial mammal, bird, and endangered species habitat, and on subsistence and sociocultural systems by requiring minimal facility footprint (Moderate). <i>ROP E-5</i> (Moderate) would be more effective than <i>Stipulation 32</i> (Low) in reducing impacts to terrestrial mammals, birds, and endangered species from aircraft activity, as facility footprint size would be balanced against the need for additional air traffic to support the facility when designing facilities. <i>Stipulation 32 and ROP E-5</i> would be equally effective in minimizing effects on recreation, wilderness area, and wild and scenic river values by minimizing the development footprint and amount of gravel use (Moderate). <i>ROP E-5</i> (Moderate) would be more effective than <i>Stipulation 32</i> (Low) in reducing impacts to these resources and resource users</p>  |   |   |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>   |   |   |
| from aircraft activity, as facility footprint size would be balanced against the need for additional air traffic to support the facility when designing facilities. <i>Stipulation 32 and ROP E-5</i> would be equally effective in minimizing effects on visual resources by minimizing the development footprint and amount of gravel use (Moderate). <i>Stipulation 33 and Lease Stipulation K-5c</i> would be equally effective in reducing, but not necessarily totally eliminating, impacts to terrestrial mammals, specifically TLH caribou. |   |   |
| 33. Within the Special Caribou Stipulations Area, lessees shall orient linear corridors when laying out oil field developments to address migration and corralling effects and to avoid loops of road and/or pipeline that connect facilities.  | <b>K-5c Lease Stipulation</b><br>c. Within the Teshekpuk Lake Caribou Habitat Area, lessees shall orient linear corridors when laying out oil field developments to the extent practicable, to address migration and corralling effects and to avoid loops of road and/or pipeline that connect facilities.   | <b>K-5c Lease Stipulation</b><br>c. Within the Teshekpuk Lake Caribou Habitat Area, lessees shall orient linear corridors when laying out oil field developments to the extent practicable, to address migration and corralling effects and to avoid loops of road and/or pipeline that connect facilities.   |
| <b>Alternative A Stipulation 33 and Alternatives B, C, and D Lease Stipulation K-5c</b> would be equally effective in reducing impacts on terrestrial mammals and subsistence use patterns by providing increased protection to caribou (Moderate).   |   |   |
| 34. Lessees shall separate elevated pipelines from roads by a minimum of 500 feet, if feasible. Separating roads from pipelines may not be feasible within narrow land corridors between lakes and where pipe and road converge on a drill pad.   | <b>E-7 Required Operating Procedure</b><br><u>Objective:</u> Minimize disruption of caribou movement and subsistence use.<br><u>Requirement/Standard:</u> Pipelines and roads shall be designed to allow the free movement of caribou and the safe, unimpeded passage of the public while participating in traditional subsistence activities. Listed below are the accepted design practices:<br>a. Above ground pipelines shall be elevated a minimum of 7 feet as measured from the ground to the bottom of the pipeline at vertical support members.<br>b. In areas where facilities or terrain may funnel caribou movement, ramps over pipelines, buried pipelines, or pipelines buried under roads may be required by the AO after consultation with federal, state, and NSB regulatory and resource agencies (as appropriate, based on agency legal authority and jurisdictional responsibility).<br>c. A minimum distance of 500 feet between pipelines and roads should be maintained when feasible. Separating roads from pipelines may not be feasible within narrow land corridors between lakes and where pipelines and roads converge on a drill pad. | <b>E-7 Required Operating Procedure</b><br><u>Objective:</u> Minimize disruption of caribou movement and subsistence use.<br><u>Requirement/Standard:</u> Pipelines and roads shall be designed to allow the free movement of caribou and the safe, unimpeded passage of the public while participating in traditional subsistence activities. Listed below are the accepted design practices:<br>a. Above ground pipelines shall be elevated a minimum of 7 feet as measured from the ground to the bottom of the pipeline at vertical support members.<br>b. In areas where facilities or terrain may funnel caribou movement, ramps over pipelines, buried pipelines, or pipelines buried under roads may be required by the AO after consultation with federal, state, and NSB regulatory and resource agencies (as appropriate, based on agency legal authority and jurisdictional responsibility).<br>c. A minimum distance of 500 feet between pipelines and roads should be maintained when feasible. Separating roads from pipelines may not be feasible within narrow land corridors between lakes and where pipelines and roads converge on a drill pad. |
| 35. To minimize delay or deflection of caribou movements, lessees shall place pipeline on the appropriate side of the road as determined by the AO (depending on general caribou movements in the area).  |   |   |
| 36. In the Special Caribou Stipulations Area and where facilities or terrain may funnel caribou movement, ramps over pipelines, buried pipe, or pipe buried under the road may be required by the AO after consultation with appropriate federal, state, and NSB regulatory and resource agencies.  |   |   |
| 37. Aboveground pipelines shall be elevated at least 5 feet, as measured from the ground to the bottom of the pipe, except where the pipeline intersects a road, pad, or a ramp installed to facilitate wildlife passage and subsistence passage and access. The AO, in consultation with appropriate federal, state, and NSB regulatory and resource agencies, may make an exception if no feasible and prudent means exists to  |   |   |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>   |   |   |
| meet the requirement.   | <b>E-4 Required Operating Procedure</b><br><u>Objective:</u> Minimize the potential for pipeline leaks, the resulting environmental damage and industrial accidents.<br><u>Requirement/Standard:</u> All pipelines shall be designed, constructed, and operated under an AO-approved Quality Assurance/Quality Control plan that is specific to the product transported.  | <b>E-4 Required Operating Procedure</b><br><u>Objective:</u> Minimize the potential for pipeline leaks, the resulting environmental damage and industrial accidents.<br><u>Requirement/Standard:</u> All pipelines shall be designed, constructed, and operated under an AO-approved Quality Assurance/Quality Control plan that is specific to the product transported.  |
| <p>38. All crude oil, produced water, seawater, and natural gas pipelines shall be constructed to accommodate the best available technology for detecting corrosion or mechanical defects during routine structural integrity inspections.</p> <p><i>Alternative A Stipulation 34-36 and Alternatives B, C, and D Lease Stipulation K-5(b,c)</i> would be equally effective in reducing impacts on <b>terrestrial mammals</b> (primarily caribou) and <b>subsistence</b> use patterns by ensuring that pipelines are constructed in such a manner as to minimize any potential effects on caribou movement and subsistence use of these animals. Separating pipelines from roads by at least 500 ft, and burying or ramping the pipeline in critical funnel areas, should avoid most potential deflection of caribou movements and allow subsistence use (Moderate).</p> <p><i>Alternative A Stipulation 37</i> would be slightly less effective in preventing <b>bird and endangered species</b> collisions with pipelines than Alternatives B, C, and D <i>ROP E-7</i>, as pipeline height would be approximately 5 feet or higher for <i>Stipulation 37</i>, but 7 feet or higher for <i>ROP E-7</i> (Moderate). <i>Stipulations 34 to 36</i> and <i>ROP E-7</i> would be equally effective in reducing impacts of oil development on caribou and other large <b>terrestrial mammals</b> by requiring design of roads and pipelines to allow for free movement of caribou (Moderate). <i>Stipulation 37</i> (Moderate) would be less effective than <i>ROP E-7</i> (High) in facilitating movement of caribou and other large <b>terrestrial mammals</b> from insect-relief habitat to inland foraging habitat, as pipelines would be 5 feet or higher under <i>Stipulation 37</i>, but 7 feet or higher under <i>ROP E-7</i>. <i>Stipulations 34 to 36</i> and <i>ROP E-7</i> would be equally effective in reducing <b>sociocultural</b> impacts and disruption of <b>subsistence-harvest patterns</b> by minimizing the disruption of caribou movement by requiring pipelines and roads to be designed to allow the free movement of caribou and the safe and unimpeded passage of subsistence hunters. <i>Stipulation 37</i> (Moderate) would be less effective than <i>ROP E-7</i> (High) in reducing <b>sociocultural</b> impacts and disruption of <b>subsistence-harvest patterns</b> by minimizing the disruption of caribou movement as pipeline height would be approximately 5 feet or higher for <i>Stipulation 37</i>, but 7 feet or higher for <i>ROP E-7</i> (Moderate).</p> <p><i>Alternative A Stipulation 38</i> and Alternatives B,C, and D <i>ROP E-4</i> should provide equal benefit in the avoidance of impact to <b>soils, water quality and water resources, fish and fish habitat, wetlands, vegetation, and birds</b> by ensuring that pipelines are designed, constructed, and operated in a technically sound manner so as to prevent petroleum releases through pipeline failure.</p> |   |   |
| 39. Permanent oil and gas facilities, including roads, airstrips, and pipelines, are prohibited within and adjacent to the water bodies listed below at the distances identified to protect fish and raptor habitat, cultural and paleontological resources, and subsistence and other resource values. Setbacks include the bed of the water body and are measured from the bank's highest high water mark.  | <b>K-1 Lease Stipulation - Rivers</b><br><u>Objective:</u> Minimize the disruption of natural flow patterns and changes to water quality; the disruption of natural functions resulting from the loss or change to vegetative and physical characteristics of floodplain and riparian areas; the loss of spawning, rearing or over-wintering habitat for fish; the loss of cultural and paleontological resources; the loss of raptor habitat; impacts to subsistence cabin and campsites; the disruption of subsistence activities; and impacts to scenic and other resource values.<br><u>Requirement/Standard:</u> Permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines, are prohibited in the streambed and adjacent to the rivers listed below at the distances identified. With the exception of the Ikpikpuk River, these setbacks are measured from the bank of the river as determined by the hydrology at | <b>K-1 Lease Stipulation - Rivers</b><br><u>Objective:</u> Minimize the disruption of natural flow patterns and changes to water quality; the disruption of natural functions resulting from the loss or change to vegetative and physical characteristics of floodplain and riparian areas; the loss of spawning, rearing or over-wintering habitat for fish; the loss of cultural and paleontological resources; the loss of raptor habitat; impacts to subsistence cabin and campsites; the disruption of subsistence activities; and impacts to scenic and other resource values.<br><u>Requirement/Standard:</u> Permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines, are prohibited in the streambed and adjacent to the rivers listed below at the distances identified. With the exception of the Ikpikpuk River, these setbacks are measured from the bank of the river as determined by the hydrology at |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <p align="center"><b>FACILITY DESIGN AND CONSTRUCTION</b></p>  |  |  |
| <p>a. <b>Ikpikpuk River:</b> a ½-mile setback from the bank of the Ikpiupuk River within the Planning Area (fish, raptors, subsistence, cultural, and paleontological resources).</p> <p>b. <b>Miguakiak River:</b> a ½-mile setback from each bank of the Miguakiak River (fish and subsistence resources).</p> <p>c. <b>Teshkepuk Lake:</b> a ½-mile setback from the bank and around the perimeter of Teshkepuk Lake (fish and subsistence resources).</p> <p>d. <b>Fish Creek:</b> (1) a 3-mile setback from each bank of Fish Creek downstream from Sec. 31, T11 N., R. 1 E.; (2) a ½-mile setback from each bank of Fish Creek in and upstream from Sec.</p> | <p>the time of application. The standard setback is ½ mile (from the bank's highest high water mark) and increased to ¾ mile (from the bank's highest high water mark) where subsistence cabin and campsites are numerous. Along the Colville River and a portion of the Ikpiupuk a 1-mile (from the bank's highest high water mark) setback is required to protect important raptor habitat (for locations along rivers where setback distances change). On a case-by case basis, and in consultation with federal, state, and NSB regulatory and resource agencies (as appropriate, based on agency legal authority and jurisdictional responsibility), essential pipeline and road crossings to the main channel will be permitted (unless noted otherwise) through setback areas. The above setbacks may not be practical within river deltas. In these situations, permanent facilities shall be designed to withstand a 200-year flood event.</p> <p>b. <b>Ikpikpuk River:</b> a ¾-mile setback from each side of the centerline (1½ miles total) of the Ikpiupuk River extending from the mouth south to Sec. 19, T. 7 N., R. 11 W., U.M. (Umiat Meridian). From Sec. 19, T. 7 N., R. 11 W., U.M., to Sec. 4, T. 3 N., R. 12 W., U.M., a 1-mile setback is required. Beginning at Sec. 4, T. 3 N., R. 12 W., U.M., a ½-mile setback from the centerline (1 mile total) will be required to the confluence of the Kigalik River and Maybe Creek. <u>Note: The setback distances only apply to the east bank where the Ikpiupuk River is the Planning Area boundary.</u></p> <p>c. <b>Miguakiak River:</b> ½ mile (from the bank's highest high water mark) setback from the Miguakiak River.</p> <p>e. <b>Fish Creek:</b> No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within 3 miles (from the bank's highest high water mark) of</p> | <p>the time of application. The standard setback is ½ mile (from the bank's highest high water mark) and increased to ¾ mile (from the bank's highest high water mark) where subsistence cabin and campsites are numerous. Along the Colville River and a portion of the Ikpiupuk a 1-mile (from the bank's highest high water mark) setback is required to protect important raptor habitat (for locations along rivers where setback distances change). On a case-by case basis, and in consultation with federal, state, and NSB regulatory and resource agencies (as appropriate, based on agency legal authority and jurisdictional responsibility), essential pipeline and road crossings to the main channel will be permitted (unless noted otherwise) through setback areas. The above setbacks may not be practical within river deltas. In these situations, permanent facilities shall be designed to withstand a 200-year flood event.</p> <p>b. <b>Ikpikpuk River:</b> a ¾-mile setback from each side of the centerline (1½ miles total) of the Ikpiupuk River extending from the mouth south to Sec. 19, T. 7 N., R. 11 W., U.M. (Umiat Meridian). From Sec. 19, T. 7 N., R. 11 W., U.M., to Sec. 4, T. 3 N., R. 12 W., U.M., a 1-mile setback is required. Beginning at Sec. 4, T. 3 N., R. 12 W., U.M., a ½-mile setback from the centerline (1 mile total) will be required to the confluence of the Kigalik River and Maybe Creek. <u>Note: The setback distances only apply to the east bank where the Ikpiupuk River is the Planning Area boundary.</u></p> <p>c. <b>Miguakiak River:</b> ½ mile (from the bank's highest high water mark) setback from the Miguakiak River.</p> <p>e. <b>Fish Creek:</b> No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within 3 miles (from the bank's highest high water mark) of</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>   |  |  |
| <p>31, T. 11 N., R. 1 E. (fish and subsistence resources).</p> <p>e. <b>Judy Creek:</b> a ½-mile setback from each bank of Judy Creek extending from the mouth to the confluence of an unnamed tributary in Sec. 8, T8N., R.2W., Umiat Meridian (fish and subsistence resources).</p> <p>f. <b>Colville River:</b> a 1-mile setback from the western bluff (or bank if there is no bluff) of the Colville River extending the length of the river as described in the Colville River Raptor, Passerine, and Moose LUEA. This restriction does not apply within 1½ miles of the Umiat airstrip (fish, raptor, passerine, moose, paleontological, subsistence, scenic, and recreational resources).</p> <p>g. <b>See Deep Water Lakes (below).</b></p> <p>h. <b>Kikiakrorak River:</b> a 1-mile setback from each bluff (or bank if there is no bluff) of the Kikiakrorak River downstream from T.2 N, R. 4 W., Umiat Meridian (raptor, passerine, and moose resources).</p> <p>i. <b>Kogosukruk River:</b> a 1-mile setback from each bluff (or bank if there is no bluff) of the Kogosukruk River (including the four tributaries off the southern bank) downstream from T.2 N., R.3W., Umiat Meridian (raptor,</p> | <p>the creek downstream from the eastern edge of Sec. 31, T. 11 N., R. 1 E., U.M. or within ½ mile (from the bank's highest high water mark) of the creek farther upstream.</p> <p>f. <b>Judy Creek:</b> No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within ½ mile (from the bank's highest high water mark) of these water bodies.</p> <p>a. <b>Colville River:</b> a 1-mile setback from the northern bluff (or bank if there is no bluff) of the Colville River extending the length of that portion of the river located within the Planning Area. <u>Note: The Planning Area excludes conveyed Native lands along the lower reaches of the Colville River.</u> Development of road crossings intended to support oil and gas activities shall be consolidated with other similar projects and uses to the maximum extent possible. <u>Note: This provision does not apply to intercommunity or other permanent roads constructed with public funds for general transportation purposes. This preserves the opportunity to plan, design, and construct public transportation systems to meet the economic, transportation, and public health and safety needs of the State of Alaska and/or communities within National Petroleum Reserve - Alaska.</u></p> <p>d. <b>Kikiakrorak and Kogosukruk Rivers:</b> <u>Note: The following discussion refers only to portions of the Kikiakrorak River downstream from T. 2 N., R. 4 W., U.M. and the Kogosukruk River (including the four tributaries off the southern bank) downstream from T. 2 N., R. 3 W., U.M..</u> No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within 1 mile of the top of the bluff (or bank if there is no bluff) on either side of the</p> | <p>the creek downstream from the eastern edge of Sec. 31, T. 11 N., R. 1 E., U.M. or within ½ mile (from the bank's highest high water mark) of the creek farther upstream.</p> <p>f. <b>Judy Creek:</b> No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within ½ mile (from the bank's highest high water mark) of these water bodies.</p> <p>a. <b>Colville River:</b> a 1-mile setback from the northern bluff (or bank if there is no bluff) of the Colville River extending the length of that portion of the river located within the Planning Area. <u>Note: The Planning Area excludes conveyed Native lands along the lower reaches of the Colville River.</u> Development of road crossings intended to support oil and gas activities shall be consolidated with other similar projects and uses to the maximum extent possible. <u>Note: This provision does not apply to intercommunity or other permanent roads constructed with public funds for general transportation purposes. This preserves the opportunity to plan, design, and construct public transportation systems to meet the economic, transportation, and public health and safety needs of the State of Alaska and/or communities within National Petroleum Reserve - Alaska.</u></p> <p>d. <b>Kikiakrorak and Kogosukruk Rivers:</b> <u>Note: The following discussion refers only to portions of the Kikiakrorak River downstream from T. 2 N., R. 4 W., U.M. and the Kogosukruk River (including the four tributaries off the southern bank) downstream from T. 2 N., R. 3 W., U.M..</u> No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within 1 mile of the top of the bluff (or bank if there is no bluff) on either side of the</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|--|---|
| <p style="text-align: center;"><b>FACILITY DESIGN AND CONSTRUCTION</b></p>  |  |   |
| <p>passerine, and moose resources).</p> <p>On a case-by-case basis, essential pipeline and road crossings will be permitted, in consultation with appropriate federal, state, and NSB regulatory and resource agencies, through setback areas in those instances where no other suitable sites are available. Stream crossings will be sited perpendicular to the main channel flow; lake crossings will be at the narrowest point. Pipeline and road crossings are prohibited in the setback around Teshekpuk Lake, with no exceptions. Road crossings are prohibited in the setback adjacent to the Colville River with no exceptions.</p> <p>g. <b>Deep Water Lakes:</b> a ¼-mile setback around the perimeter of any fish-bearing lake within or partially within the deep lake zone. If the fish-bearing status of the water body is unknown, the burden is on the lessee to demonstrate whether fish are present.</p> | <p>rivers and several of the Kogosukruk tributaries.</p> <p>e. <b>Tingmiaksiqvik River:</b> No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within ½ mile (from the bank's highest high water mark) of this river from the eastern edge of Sec. 22, T. 8 N., R. 1 E. U.M. (the western boundary of the Colville River Special Area) downstream to the confluence with Fish Creek. <u>Note: This stipulation applies only to the Preferred Alternative.</u></p> <p><b>K-2 Lease Stipulation--Deep Water Lakes</b><br/><u>Objective:</u> Minimize the disruption of natural flow patterns and changes to water quality; the disruption of natural functions resulting from the loss or change to vegetative and physical characteristics of deep water lakes; the loss of spawning, rearing or over wintering habitat for fish; the loss of cultural and paleontological resources; impacts to subsistence cabin and campsites; and the disruption of subsistence activities.<br/><u>Requirement/Standard:</u> Permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines, are prohibited on the lake or lakebed and within ¼ mile of the ordinary high water mark of any deep lake as determined to be in lake zone III (i.e., depth greater than 13 feet [4 meters]; Mellor 1985). On a case-by case basis, and in consultation with federal, state and NSB regulatory and resource agencies (as appropriate based on agency legal authority and jurisdictional responsibility), essential pipeline, road crossings, and other permanent facilities may be permitted through or in these areas where the lessee can demonstrate on a site-specific basis that impacts would be minimal or if it is determined that there is no feasible or prudent alternative.</p> | <p>rivers and several of the Kogosukruk tributaries.</p> <p>e. <b>Tingmiaksiqvik River:</b> No permanent oil and gas surface facilities, except essential transportation crossings, would be allowed within ½ mile (from the bank's highest high water mark) of this river from the eastern edge of Sec. 22, T. 8 N., R. 1 E. U.M. (the western boundary of the Colville River Special Area) downstream to the confluence with Fish Creek. <u>Note: This stipulation applies only to the Preferred Alternative.</u></p> <p><b>K-2 Lease Stipulation--Deep Water Lakes</b><br/><u>Objective:</u> Minimize the disruption of natural flow patterns and changes to water quality; the disruption of natural functions resulting from the loss or change to vegetative and physical characteristics of deep water lakes; the loss of spawning, rearing or over wintering habitat for fish; the loss of cultural and paleontological resources; impacts to subsistence cabin and campsites; and the disruption of subsistence activities.<br/><u>Requirement/Standard:</u> Generally, permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines, are prohibited on the lake or lakebed and within ¼ mile of the ordinary high water mark of any deep lake as determined to be in lake zone III (i.e., depth greater than 13 feet [4 meters]; Mellor 1985). On a case-by case basis, and in consultation with federal, state and NSB regulatory and resource agencies (as appropriate based on agency legal authority and jurisdictional responsibility), essential pipeline, road crossings, and other permanent facilities may be considered through the permitting process in these areas where the lessee can demonstrate on a site-specific basis that impacts would be minimal or if it is determined that there is no feasible or prudent</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>  |  |  |
|  |  | alternative. Please see discussion regarding BLM's permitting/authorization process, <a href="#">Section 2.6.2</a> .   |
| <p><i>Alternative A Stipulation 39 and Alternatives B, C, and D - Lease Stipulation K-1</i> would be equally effective in reducing the potential for <b>soil</b> disturbance and erosion and impacts to soil from oil spills by establishing setbacks along the major rivers and streams. The same would hold true for avoiding impacts to <b>paleontological and cultural resources</b> found on and within the soil, for <b>water resources and water quality</b> by protecting aquatic and riparian areas adjacent to major rivers and streams. (High). <i>Lease Stipulation K-1</i> would be more protective to water resources and water quality than <i>Stipulation 39</i> by providing protection to the Tingmiaksiqvik River, which is not protected under <i>Stipulation 39</i> (High). These stipulations would be equally protective of aquatic, floodplain and riparian <b>vegetation and wetlands</b> by protecting aquatic and riparian areas adjacent to major rivers and streams (High). <i>Stipulation 39 and Lease Stipulation K-1</i> would be equally beneficial to both <b>freshwater and marine fish and fish habitat</b> by reducing the potential for accidental spills to enter riverine waters which in turn could contaminate coastal/marine waters where marine fishes might be impacted. The setbacks also would increase the opportunity for oil spill response and cleanup to occur well before contaminants enter either riverine or coastal/marine fish habitats (High). <i>Stipulation 39 and Lease Stipulation K-1</i> would be equally effective in reducing disturbance of raptors nesting along listed waterways and other <b>birds</b> occupying adjacent corridors--as well as avoiding destruction of habitats--by prohibiting permanent oil and gas facilities within established setback zones along listed waterways (High). <i>Stipulation 39 and Lease Stipulation K-1</i> would be equally effective in reducing impacts to <b>endangered and threatened species</b> by helping to reduce disturbance of eiders nesting or occupying areas along identified waterways, as well as by avoiding destruction of habitats by prohibiting permanent oil and gas facilities within the listed setback areas (High). <i>Stipulation 39 and Lease Stipulation K-1</i> would be equally effective in reducing impacts on <b>subsistence-harvest patterns</b> by specifically identifying the rivers of prime importance to subsistence and defining setback requirements. These setbacks protect against impeding subsistence pursuits, guard against potential sociocultural disruptions that then fall under the purview of <b>environmental justice</b> (High). <i>Stipulation 39 and Lease Stipulation K-1</i> would be beneficial to <b>wild and scenic river</b> values by reducing the potential for disturbance to major rivers and streams and for accidental spills to enter riverine waters (High).</p> <p><i>Alternative A Stipulation 39 and Alternatives B, C, and D Lease Stipulation K-2</i> would be equally effective in reducing the potential for <b>soil</b> disturbance and erosion and impacts to soil from oil spills, and therefore reducing impacts to <b>paleontological and cultural resources</b> by establishing setbacks along fish-bearing (<i>Alternative A</i>) or deep-water (<i>Alternatives B, C, and D</i>) lakes (Moderate). They would also be equally protective of <b>water resources and water quality, vegetation, wetlands, and fish and fish habitat</b> by protecting aquatic and riparian areas adjacent to deep-water lakes by establishing setbacks along fish-bearing (<i>Alternative A</i>) or deep-water (<i>Alternatives B, C, and D</i>) lakes (Moderate). <i>Stipulation 39 and Lease Stipulation K-2</i> would be equally effective in reducing disturbance to <b>birds</b> by minimizing the loss of habitat of fish prey of fish-eating birds (e.g., loons, mergansers, terns), which could adversely affect the breeding success of these water bird species that use fish-bearing (<i>Alternative A</i>) or deep-water (<i>Alternatives B, C, and D</i>) lakes (Moderate). <i>Stipulation 39 and Lease Stipulation K-2</i> would be equally effective in reducing impacts to <b>endangered and threatened species</b> by helping to reduce disturbance of eiders nesting or occupying areas along identified lakes as well as by avoiding destruction of habitats by prohibiting permanent oil and gas facilities within the listed setback areas (Moderate). <i>Stipulation 39 and Lease Stipulation K-2</i> would be equally effective in reducing impacts on <b>subsistence-harvest patterns</b> by specifically identifying the rivers of prime importance to subsistence and defining setback requirements. These setbacks protect against impeding subsistence pursuits, guard against potential sociocultural disruptions that then fall under the purview of <b>environmental justice</b> (Moderate).</p> |  |  |
| 40. Gravel mining sites required for development activities will be restricted to the minimum necessary to develop the field efficiently and with minimal environmental damage. Where feasible and prudent, gravel sites shall be designed and constructed to function as water reservoirs for future use. Gravel mine sites are prohibited within the active floodplain of a river, stream, or lake unless the AO, in consultation with appropriate federal, state, and NSB   | <p><b>E-8 Required Operating Procedure</b><br/> <u>Objective:</u> Minimize the impact of mineral materials mining activities on air, land, water, fish, and wildlife resources.<br/> <u>Requirement/Standard:</u> Gravel mine site design and reclamation will be in accordance with a plan approved by the AO. The plan shall consider:</p> <ul style="list-style-type: none"> <li>a. Locations outside the active flood plain.</li> <li>b. Design and construction of gravel mine sites</li> </ul> | <p><b>E-8 Required Operating Procedure</b><br/> <u>Objective:</u> Minimize the impact of mineral materials mining activities on air, land, water, fish, and wildlife resources.<br/> <u>Requirement/Standard:</u> Gravel mine site design and reclamation will be in accordance with a plan approved by the AO. The plan shall consider:</p> <ul style="list-style-type: none"> <li>a. Locations outside the active flood plain.</li> <li>b. Design and construction of gravel mine sites</li> </ul> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>FACILITY DESIGN AND CONSTRUCTION</b>   |  |  |
| regulatory and resource agencies, determines that there is no feasible and prudent alternative or that a floodplain site would enhance fish and wildlife habitat after mining operations are completed and the site is closed.<br>Mine site development and rehabilitation within a floodplain shall follow the procedures outlined in McLean (1993), North Slope Gravel Pit Performance Guidelines; Alaska Department of Fish and Game, Habitat and Restoration Division Technical Report 93-9.  | within active flood plains to serve as water reservoirs for future use.<br>c. Potential use of the site for enhancing fish and wildlife habitat.   | within active flood plains to serve as water reservoirs for future use.<br>c. Potential use of the site for enhancing fish and wildlife habitat.   |
| <i>Alternative A Stipulation 40</i> and Alternatives B, C, and D <i>ROP E-8</i> would be equally effective in minimizing effects on <b>soils</b> through the design and reclamation of mine sites that minimizes the size of the mine footprint and reduces erosion and maintains natural drainages (Moderate). <i>Stipulation 40</i> and <i>ROP E-8</i> would be equally effective in protecting <b>paleontological and cultural resources, water resources and water quality, vegetation, and freshwater fish</b> by limiting the size of the gravel mine site, and therefore impacts to floodplains (Moderate). <i>Stipulation 40</i> and <i>ROP E-8</i> would be equally effective in reducing impacts to vegetation by minimizing the size of the mine footprint and by increasing the likelihood of vegetation would eventually be returned to a natural (or at least more productive) state, and be equally beneficial in creating new wetland habitat (Moderate). <i>Stipulation 40</i> and <i>ROP E-8</i> would be equally beneficial in minimizing the mine site footprint to reduce loss of bird habitat, and reclaiming the site to provide habitat for <b>fish</b> and fish-eating <b>birds</b> and loafing habitat for other birds (Moderate). <i>Stipulation 40</i> and <i>ROP E-8</i> would reduce impacts on subsistence-harvest patterns by reducing the impact of gravel mining operations on <b>birds, fish, and fish habitat</b> (Moderate). |  |  |
| 41. For those water bodies not listed in <i>Stipulation 39</i> , permanent oil and gas facilities, including roads, airstrips, and pipelines, are prohibited upon or within 500 feet as measured from the highest high water mark of the active floodplain. Essential pipeline and road crossings will be permitted on a case-by-case basis.  | <b><i>E-2 Lease Stipulation</i></b><br><u>Objective:</u> Protect fish-bearing water bodies, water quality, and aquatic habitats.<br><u>Requirement/Standard:</u> The design and location of permanent oil and gas facilities within 500 feet of fish-bearing or 100 feet of non-fish-bearing water bodies will only be approved on a case by case basis if the lessee can demonstrate that impacts to fish, water quality, and aquatic and riparian habitats are minimal. <u>Note: Also refer to Area-Specific Stipulations and ROPs for Rivers Area (Lease Stipulation K-1) and Deep Water Lakes (Lease Stipulation K-2).</u> | <b><i>E-2 Lease Stipulation</i></b><br><u>Objective:</u> Protect fish-bearing water bodies, water quality, and aquatic habitats.<br><u>Requirement/Standard:</u> The design and location of permanent oil and gas facilities within 500 feet of fish-bearing or 100 feet of non-fish-bearing water bodies will only be approved on a case by case basis if the lessee can demonstrate that impacts to fish, water quality, and aquatic and riparian habitats are minimal. <u>Note: Also refer to Area-Specific Stipulations and ROPs for Rivers Area (Lease Stipulation K-1) and Deep Water Lakes (Lease Stipulation K-2).</u> |
| <i>Alternatives A Stipulation 41</i> (High) would be somewhat more effective than <i>Lease Stipulation E-2</i> (Moderate) in protecting <b>soil resources, paleontological and cultural resources, vegetation, wetlands, freshwater fish and fish habitat, threatened and endangered species, birds, and subsistence use patterns</b> because permanent oil and gas facilities would be prohibited within 500 feet of the active floodplain under <i>Stipulation 41</i> , but could be allowed within 100 feet of a non-fish-bearing water body, and perhaps even closed on a case-by-case basis, under <i>Lease Stipulation E-2</i> .<br><i>Alternative A Stipulation 41</i> (Moderate) would be more effective than <i>Alternatives B,C, and D Lease Stipulation E-2</i> (Low) in protecting <b>water resources and water quality</b> because permanent oil and gas facilities would be prohibited within 500 feet of the active floodplain under <i>Stipulation 41</i> , but could be allowed within 100 feet of a non-fish-bearing water body, and perhaps even closer on a case-by-case basis, under <i>Lease Stipulation E-2</i> .<br><i>Alternative A Stipulation 41 and Alternatives B, C, and D Lease Stipulation E-2</i> would be equally effective in reducing the potential effects of fuel spills on grizzly bears, arctic   |  |  |



Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
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| <b>FACILITY DESIGN AND CONSTRUCTION</b>  |   |   |
| <p>foxes, and other <b>terrestrial mammals</b> (Moderate).<br/> <i>Alternative A Stipulation 41 and Alternatives B, C, and D Lease Stipulation E-2</i> would be equally effective in increasing the protection of <b>wilderness and recreation resources</b> (Moderate).<br/> <i>Alternative A Stipulation 41</i> (High) would be more effective than <i>Alternatives B, C, and D Lease Stipulation E-2</i> (Moderate) in limiting the impacts that oil and gas exploration and development will have on <b>wild and scenic river</b> values because refueling activities would be prohibited within 500 feet of both fish- and non-fish-bearing waters; <i>ROP A-5</i> would allow refueling operations within 100 feet of non-fish-bearing waters.</p>   |   |   |
| <p>42. Bridges, rather than culverts, shall be used for any allowed road crossings on all major rivers, including those water bodies listed in <i>Stipulation 39</i> or identified by the AO in consultation with appropriate federal, state, and NSB regulatory and resource agencies, to reduce the potential of ice-jam flooding and erosion. When necessary on smaller streams, culverts shall be large enough to avoid restriction of fish passage or adversely affecting natural stream flow.</p>  | <p><b><i>E-6 Required Operating Procedure</i></b><br/> <u>Objective:</u> Reduce the potential for ice-jam flooding, impacts to wetlands and floodplains, erosion, alteration of natural drainage patterns, and restriction of fish passage.<br/> <u>Requirement/Standard:</u> Stream and marsh crossings shall be designed and constructed to ensure free passage of fish, maintain natural drainage, and minimize adverse effects to natural stream flow. <u>Note: Bridges, rather than culverts, are the preferred method for crossing rivers. When necessary, culverts can be constructed on smaller streams, if they are large enough to avoid restricting fish passage or adversely affecting natural stream flow.</u></p>                 | <p><b><i>E-6 Required Operating Procedure</i></b><br/> <u>Objective:</u> Reduce the potential for ice-jam flooding, impacts to wetlands and floodplains, erosion, alteration of natural drainage patterns, and restriction of fish passage.<br/> <u>Requirement/Standard:</u> Stream and marsh crossings shall be designed and constructed to ensure free passage of fish, maintain natural drainage, and minimize adverse effects to natural stream flow. <u>Note: Bridges, rather than culverts, are the preferred method for crossing rivers. When necessary, culverts can be constructed on smaller streams, if they are large enough to avoid restricting fish passage or adversely affecting natural stream flow.</u></p>                 |
| <p><i>Alternative A Stipulation 42 and Alternatives B, C, and D - ROP E-6</i> would be equally effective in minimizing effects on <b>soils, water resources and water quality, wetlands, freshwater fish habitat and fish, subsistence use patterns</b> for these species, and <b>wild and scenic rivers</b> values, by maintaining natural drainages that may reduce erosion, and requiring construction in a manner that allows free passage of fish (High). Maintenance of the natural drainage would protect stream flows and therefore the fish, fish habitat within the streams, and riparian habitats such as wetlands. Reducing impacts on fish and will minimize and impacts to subsistence-harvest patterns associated with the fish. The stipulations would also be effective in limiting the impacts that oil and gas exploration and development will have on wild and scenic river values. Without this ROP we expect greater impacts due to the obstruction to fish passage and declines in outstandingly remarkable values for fish, and subsistence use (High).</p> |   |   |
| <p>43. The natural drainage pattern will be identified prior to and maintained during and after construction. All permanent structures constructed adjacent to a body of water, such as approved road and pipeline crossings, shall be sited and designed to limit erosion from flooding and wave action (e.g., through use of slope-protection measures). Cross-drainage structures will be sited, maintained, and properly abandoned to prevent impoundments or alteration of local or area-wide hydrology. Gravel structures shall be designed and sited to minimize the length that is perpendicular to sheet flow.</p>  | <p><b><i>E-5 Required Operating Procedures as in No. 32 above.</i></b><br/> <b><i>E-6 Required Operating Procedures as in No. 42 above.</i></b><br/> <b><i>E-12 Required Operating Procedure</i></b><br/> <u>Objective:</u> Use ecological mapping as a tool to assess wildlife habitat before development of permanent facilities, to conserve important habitat types during development.<br/> <u>Requirement/Standard:</u> An ecological land classification map of the development area shall be developed before approval of facility construction. The map will integrate geomorphology, surface form, and vegetation at a scale, level of resolution, and level of positional accuracy adequate for detailed analysis of development</p> | <p><b><i>E-5 Required Operating Procedures as in No. 32 above.</i></b><br/> <b><i>E-6 Required Operating Procedures as in No. 42 above.</i></b><br/> <b><i>E-12 Required Operating Procedure</i></b><br/> <u>Objective:</u> Use ecological mapping as a tool to assess wildlife habitat before development of permanent facilities, to conserve important habitat types during development.<br/> <u>Requirement/Standard:</u> An ecological land classification map of the development area shall be developed before approval of facility construction. The map will integrate geomorphology, surface form, and vegetation at a scale, level of resolution, and level of positional accuracy adequate for detailed analysis of development</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
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| <b>FACILITY DESIGN AND CONSTRUCTION</b>  |  |  |
|  | alternatives. The map shall be prepared in time to plan one season of ground-based wildlife surveys, if deemed necessary by the AO, before approval of the exact facility location and facility construction.  | alternatives. The map shall be prepared in time to plan one season of ground-based wildlife surveys, if deemed necessary by the AO, before approval of the exact facility location and facility construction.  |
| <p>Effectiveness of <i>Stipulation 43 and ROP E-6</i> shown in No. 42 above.</p> <p><i>Alternative A Stipulation 43 and Alternatives B, C, and D - ROP E-12</i> would be equally effective in minimizing impacts to <b>soil, water resources and water quality, vegetation, wetlands, birds, and terrestrial mammals</b>, by ensuring that facilities are sited to minimize alteration of local or area-wide hydrology. Preventing changes to hydrology will avoid impacts to water resources and water quality, vegetation, and the birds and terrestrial mammals that use the area habitats. <i>Stipulation 43 and ROP E-12</i> would be equally effective in mitigating impacts to vegetation by requiring development of an ecological land classification map or facility site plan that reduces impacts to vegetation (Moderate). <i>Stipulation 43 and ROP E-12</i> would be equally effective in mitigating impacts to <b>wetlands, birds, terrestrial mammals, and endangered and threatened species, subsistence use, and sociocultural systems</b> by requiring development of an ecological land classification map or facility site plan that reduces the amount of important habitat types that might be impacted by development. (Moderate). Conserving important habitat types will minimize impacts to the <b>endangered species</b> (eiders), <b>terrestrial mammals, birds, and subsistence use</b> of these habitats and species. Minimization of impacts to subsistence translates directly to avoidance of <b>sociocultural systems</b> impacts. (Moderate).</p> |  |  |
| 44. Dewatering during construction shall be conducted using BMPs. A current list of BMPs will be available from the AO. Examples include the use of splash plates, dewatering points, natural filtration through vegetation, and dewatering during low-water period.   | <b>E-12 Required Operating Procedure as in No. 43 above.</b>   | <b>E-12 Required Operating Procedure as in No. 43 above.</b>   |
| Effectiveness of <i>Stipulation 44 and ROP E-12</i> shown in No. 43 above.   |  |  |
| 45. No surface structures, except essential transportation crossings, are allowed within the Pik Dunes LUEA.   | <p><b>K-8 Lease Stipulation - Pik Dunes</b></p> <p><u>Objective:</u> Retain unique qualities of the Pik Dunes, including geologic and scenic uniqueness, insect-relief habitat for caribou, and habitat for several uncommon plant species.</p> <p><u>Requirement/Standard:</u> Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited within the Pik Dunes.</p> | <p><b>K-8 Lease Stipulation - Pik Dunes</b></p> <p><u>Objective:</u> Retain unique qualities of the Pik Dunes, including geologic and scenic uniqueness, insect-relief habitat for caribou, habitat for several uncommon plant species.</p> <p><u>Requirement/Standard:</u> Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited within the Pik Dunes.</p> |
| <p><i>Alternative A Stipulation 45 and Alternatives B,C, and D Lease Stipulation K-8</i> would be equally effective in protecting <b>soil, vegetation, terrestrial mammals, and the visual characteristics</b> by prohibiting surface structures on the Pik Dunes, except for essential transportation crossings (Moderate). The prohibition should protect the unique vegetation found on the Pik Dunes. The prohibition should also reduce disturbance of or loss of habitat for terrestrial mammals, particularly caribou that use the Pik Dunes as important insect-relief habitat. The visual characteristics of the Pik Dunes should be maintained by prohibiting the construction of surface structures on the dunes, except for essential transportation crossings.</p>  |  |  |
| 46. Lessees shall minimize the impact of industrial development on key wetlands. Key wetlands are those wetlands that are important to fish, waterfowl, and shorebirds because of their high value or scarcity in the region. Lessees shall identify on a map or   | <b>E-12 Required Operating Procedure as in No. 43 above.</b>   | <b>E-12 Required Operating Procedure as in No. 43 above.</b>   |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
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| <b>FACILITY DESIGN AND CONSTRUCTION</b>  |  |  |
| aerial photograph the largest surface area, including future expansion areas, within which a facility is to be sited or an activity is to occur. The AO will consult with federal, state, and NSB regulatory and resource agencies to identify key wetlands and work with lessees during the development of operating plans. To minimize impact, the lessee shall avoid siting facilities in the identified wetlands, unless no feasible and prudent alternative exists. Key wetland types include but are not limited to fish-bearing lakes and streams, riparian shrub, and the following classes described by Bergman et al. (1977): shallow and deep- <i>Arctophila</i> ponds, deep-open lakes, basin-complex wetlands, and coastal wetlands.                                      |  |  |
| Effectiveness of <i>Stipulation 46 and ROP E-12</i> shown in No. 43 above.   |  |  |
| 47. Permanent oil and gas facilities are prohibited within 1 mile of known long-term cabins or long-term campsites, identified by the AO, except that pipelines and roads are allowed up to ¼ mile from such cabins or campsites. The AO's decision will be informed by the consultation process described in <i>Stipulation 61</i> .  | <b><i>H-1 Required Operating Procedure as in No. 26 above.</i></b>   | <b><i>H-1 Required Operating Procedure as in No. 26 above.</i></b>   |
| Effectiveness of <i>Stipulation 47 and ROP H-1</i> shown in No. 26 above.  |  |  |
| 48. Permanent roads (i.e. gravel, sand) connecting to a road system or docks outside the planning area are prohibited, and no exceptions may be granted. Permanent roads necessary to connect pads within independent, remote oil fields are allowed but they must be designed and constructed to create minimal environmental impacts. Roads connecting production sites between separate oil fields may be considered if road-connected operations are environmentally preferable to independent, consolidated operations that each include airstrip, housing, production, and support facilities. This exception will only be granted following consultations with appropriate federal, state, and NSB regulatory and resources agencies, and the appropriate level of NEPA review. | <b><i>E-1 Required Operating Procedure</i></b><br><u>Objective:</u> Protect subsistence use and access to traditional subsistence hunting and fishing areas and minimize the impact of oil and gas activities on air, land, water, fish and wildlife resources.<br><u>Requirement/Standard:</u> All roads must be designed, constructed, maintained, and operated to create minimal environmental impacts and to protect subsistence use and access to traditional subsistence hunting and fishing areas. Subject to approval by the AO, the construction, operation and maintenance of oil field roads is the responsibility of the lessee. <u>Note: This provision does not apply to intercommunity or other permanent roads constructed with public funds for general transportation purposes. This preserves the opportunity to plan, design and construct public transportation systems to meet the</u> | <b><i>E-1 Required Operating Procedure</i></b><br><u>Objective:</u> Protect subsistence use and access to traditional subsistence hunting and fishing areas and minimize the impact of oil and gas activities on air, land, water, fish and wildlife resources.<br><u>Requirement/Standard:</u> All roads must be designed, constructed, maintained, and operated to create minimal environmental impacts and to protect subsistence use and access to traditional subsistence hunting and fishing areas. Subject to approval by the AO, the construction, operation and maintenance of oil field roads is the responsibility of the lessee. <u>Note: This provision does not apply to intercommunity or other permanent roads constructed with public funds for general transportation purposes. This preserves the opportunity to plan, design and construct public transportation systems to meet the</u> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
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| <b>FACILITY DESIGN AND CONSTRUCTION</b>  |  |  |
|  | <u>economic, transportation, and public health and safety needs of the State of Alaska and/or communities within the National Petroleum Reserve - Alaska.</u>  | <u>economic, transportation, and public health and safety needs of the State of Alaska and/or communities within the National Petroleum Reserve - Alaska.</u>  |
| <p><i>Alternative A Stipulation 48</i> would be somewhat more effective than <i>Alternatives B, C, and D - ROP E-1</i> in minimizing effects on <b>soils, paleontological and cultural resources, water resources and water quality, vegetation, and wetlands</b> because it would not allow the construction of a permanent road connecting to a road system or docks outside of the Planning Area that could impact near-surface resources and increase the amount of disturbance area. However, if such a road was not constructed, <i>Stipulation 48 and ROP E-1</i> would be equally effective (Moderate).</p> <p><i>Alternative A Stipulation 48</i> would be somewhat more effective than <i>Alternatives B, C, and D - ROP E-1</i> in minimizing effects <b>on endangered and threatened species, terrestrial mammal and bird habitat</b> because it would not allow the construction of a permanent road connecting to a road system or docks outside of the Planning Area that could impact habitat. <i>ROP E-1</i> may be more effective than <i>Stipulation 48</i> in protecting threatened and endangered species (eiders), terrestrial mammals (including caribou) and birds if construction of a permanent road connecting to a road system or docks outside of the Planning Area reduces the number of aircraft flights, which could disturb animals, between facilities. If such a road was not constructed, <i>Stipulation 48 and ROP E-1</i> would be equally effective (Moderate). <i>Stipulation 48</i> be somewhat more effective than <i>ROP E-1</i> in protecting <b>subsistence use</b> and access to traditional hunting and fishing areas because it would not allow the construction of a permanent road connecting to a road system or docks outside of the Planning Area that could impact caribou and other subsistence resources and the ability of hunters to pursue subsistence resources (Moderate). <i>Stipulation 48</i> would be somewhat more effective than <i>ROP E-1</i> in limiting the impact that oil and gas exploration and development would have on <b>recreation, wilderness, and wild and scenic river</b> values. Without this ROP, we would expect greater impacts from road construction, and declines in outstandingly remarkable values for fish, wildlife, and subsistence use (Moderate). <i>Alternative A Stipulation 48</i> would be somewhat more effective than <i>Alternatives B, C, and D - ROP E-1</i> in limiting the impact that oil and gas exploration and development would have on <b>visual resource</b> values. Without this ROP, we would expect greater impacts from road construction, and declines in the beneficial visual characteristics of the landscape (Moderate).</p> <p>Lessees under all alternatives are subject to the requirements of the Federal Endangered Species Act, which prohibits killing or harassing <b>threatened and endangered species</b>. <i>Alternative B, C, D – ROP E-11</i> provide additional (beyond <i>Alternative A</i>) and equal (<i>Alternatives B, C, and D</i>) benefits in the avoidance and minimization of potential impacts to <b>endangered species</b>, specifically eiders, by mandating that lessees conduct surveys for eiders for at least three years before construction of facilities can be authorized, and then consult with USFWS in the construction timing, and design and placement of the facilities. The requirement for surveys should help ensure that the lessee knows of the presence or absence of eiders and therefore prevent accidental impacts. The stipulation also mandates burial of communications cables and marking of tower support wires to minimize that possibility of eider collisions. (Moderate). <i>ROP E-11</i> also requires surveys for yellow-billed loons, a species of special concern for which the USFWS has received petitions for listing. The surveys are required when facilities are to be within one mile of a lake 25 acres or more in size. Disturbance must be minimized for any identified nesting loons with a 1-mile buffer around nests and 1,625-ft buffer around the remainder of the lake (Moderate).</p> |  |  |
| <b>GROUND TRANSPORTATION</b>   |  |  |
| <p>49. The following ground-traffic restrictions apply to permanent roads (as authorized in <i>Stipulation 48</i> above) in the Special Caribou Stipulations Area:</p> <ol style="list-style-type: none"> <li>From May 20 through June 20: <ol style="list-style-type: none"> <li>Traffic speed will not exceed 15 miles per hour.</li> <li>Traffic will be minimized (a reasonable target would be four convoy round-trips per day between facilities). Nonessential operations requiring vehicles shall be suspended during this time period.</li> </ol> </li> </ol>   | <p><b><i>K-5 Lease Stipulation - Teshekpuk Lake Caribou Habitat Area</i></b><br/> <u>Objective:</u> Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect relief, and migration.<br/> <u>Requirement/Standard:</u> In the Teshekpuk Lake Caribou Habitat Area the following standards will be applied to permitted activities:</p> <ol style="list-style-type: none"> <li>Before authorization of construction of</li> </ol> | <p><b><i>K-5 Lease Stipulation - Teshekpuk Lake Caribou Habitat Area</i></b><br/> <u>Objective:</u> Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect relief, and migration.<br/> <u>Requirement/Standard:</u> In the Teshekpuk Lake Caribou Habitat Area the following standards will be applied to permitted activities:</p> <ol style="list-style-type: none"> <li>Before authorization of construction of</li> </ol> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>GROUND TRANSPORTATION</b>  |  |  |
| <p>b. From May 20 through August 1:</p> <ol style="list-style-type: none"> <li>1. Caribou movement will be monitored.</li> <li>2. Based on this monitoring, traffic will cease when a crossing by 10 or more caribou appears to be imminent.</li> </ol> <p>c. From May 20 through August 20:</p> <ol style="list-style-type: none"> <li>1. Convoying will be used to minimize the number of disturbances due to road traffic.</li> <li>2. Personnel will be bussed between work sites and other facilities to minimize the number of vehicles on the road.</li> </ol> | <p>permanent facilities, the lessee shall design and implement a study of caribou movement unless an acceptable study(s) has been completed within the last 10 years. The study shall include a minimum of 3 years of current data on caribou movements and the study design shall be approved by the AO and should provide information necessary to determine facility (including pipeline) design and location. Lessees may submit individual study proposals or they may combine with other lessees in the area to do a single, joint study for the entire Teshekpuk Lake Caribou Habitat Area. Study data may be gathered concurrently with other activities.</p> <p>b. Exploratory drilling will be allowed only from current production pads or platforms sited within a lake body from May 20 through August 20 in the Teshekpuk Lake Caribou Habitat Area, in compliance with setback requirements set forth in other stipulations.</p> <p>c. Within the Teshekpuk Lake Caribou Habitat Area, lessees shall orient linear corridors when laying out oil field developments to the extent practicable, to address migration and corralling effects and to avoid loops of road and/or pipeline that connect facilities.</p> <p>d. Ramps over pipelines, buried pipelines, or pipelines buried under the road may be required by the AO, after consultation with appropriate federal, state, and NSB regulatory and resource agencies, in the Teshekpuk Lake Caribou Habitat Area where pipelines potentially impede caribou movement.</p> <p>e. The following ground-traffic restrictions shall apply to permanent oil and gas-related roads in the areas and time periods indicated:</p> <ol style="list-style-type: none"> <li>1. Within the Teshekpuk Lake Caribou Habitat Area, from May 20 through August 20, traffic speed shall not exceed</li> </ol> | <p>permanent facilities, the lessee shall design and implement a study of caribou movement unless an acceptable study(s) has been completed within the last 10 years. The study shall include a minimum of 3 years of current data on caribou movements and the study design shall be approved by the AO and should provide information necessary to determine facility (including pipeline) design and location. Lessees may submit individual study proposals or they may combine with other lessees in the area to do a single, joint study for the entire Teshekpuk Lake Caribou Habitat Area. Study data may be gathered concurrently with other activities.</p> <p>b. Exploratory drilling will be allowed only from current production pads or platforms sited within a lake body from May 20 through August 20 in the Teshekpuk Lake Caribou Habitat Area, in compliance with setback requirements set forth in other stipulations.</p> <p>c. Within the Teshekpuk Lake Caribou Habitat Area, lessees shall orient linear corridors when laying out oil field developments to the extent practicable, to address migration and corralling effects and to avoid loops of road and/or pipeline that connect facilities.</p> <p>d. Ramps over pipelines, buried pipelines, or pipelines buried under the road may be required by the AO, after consultation with appropriate federal, state, and NSB regulatory and resource agencies, in the Teshekpuk Lake Caribou Habitat Area where pipelines potentially impede caribou movement.</p> <p>e. The following ground-traffic restrictions shall apply to permanent oil and gas-related roads in the areas and time periods indicated:</p> <ol style="list-style-type: none"> <li>1. Within the Teshekpuk Lake Caribou Habitat Area, from May 20 through August 20, traffic speed shall not exceed</li> </ol> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>GROUND TRANSPORTATION</b>  |   |   |
|   | <p>15 miles per hour when caribou are within ½ mile on the road. Additional strategies may include limiting trips, using convoys, using different vehicle types, etc., to the extent practicable.</p> <p>2. The lessee or a contractor shall observe caribou movement. Based on these observations, traffic will be stopped temporarily to allow a crossing by 10 or more caribou. Sections of road will be evacuated when migrations of large numbers of caribou appears to imminent.</p> <p>3. Major equipment, materials, and supplies to be used at oil and gas work sites in the Teshekpuk Lake Caribou Habitat Area shall be stockpiled prior to or after the period of May 20 through August 20 to minimize road traffic during that period.</p>               | <p>15 miles per hour when caribou are within ½ mile on the road. Additional strategies may include limiting trips, using convoys, using different vehicle types, etc., to the extent practicable.</p> <p>2. The lessee or a contractor shall observe caribou movement. Based on these observations, traffic will be stopped temporarily to allow a crossing by 10 or more caribou. Sections of road will be evacuated when migrations of large numbers of caribou appears to imminent.</p> <p>3. Major equipment, materials, and supplies to be used at oil and gas work sites in the Teshekpuk Lake Caribou Habitat Area shall be stockpiled prior to or after the period of May 20 through August 20 to minimize road traffic during that period.</p>               |
| <p><i>Alternative A Stipulation 49 and Alternatives B, C, and D Lease Stipulation K-5</i> would be equally protective of <b>air quality, water resources and water quality, and vegetation</b> by reducing vehicle travel speeds that can cause dust (PM<sub>10</sub>) emissions. Deposition of dust and soil deposition into nearby water bodies can affect water quality and water resources. Deposition on vegetation can harm or kill plants.</p> <p><i>Alternative A Stipulation 49 and Alternatives B, C, and D Lease Stipulation K-5</i> would be equally effective in reducing impacts to <b>terrestrial mammals</b>, specifically TLH caribou, from traffic, and to <b>subsistence use patterns</b> by providing increased protection to caribou (Moderate).</p> |   |   |
| <p>50. Major stockpiling of equipment, materials, and supplies for oil and gas activities in the Special Caribou Stipulations Area shall occur prior to or after the period May 20 through June 20 to minimize road traffic during that period.</p>   | <p><b><i>K-5e.3 Lease Stipulation - Teshekpuk Lake Caribou Habitat Area</i></b><br/> <u>Objective:</u> Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect relief, and migration.<br/> <u>Requirement/Standard:</u> In the Teshekpuk Lake Caribou Habitat Area the following standards will be applied to permitted activities:</p> <p>e. The following ground-traffic restrictions shall apply to permanent oil and gas-related roads in the areas and time periods indicated:</p> <p>3. Major equipment, materials, and supplies to be used at oil and gas work sites in the Teshekpuk Lake</p> | <p><b><i>K-5e.3 Lease Stipulation - Teshekpuk Lake Caribou Habitat Area</i></b><br/> <u>Objective:</u> Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect relief, and migration.<br/> <u>Requirement/Standard:</u> In the Teshekpuk Lake Caribou Habitat Area the following standards will be applied to permitted activities:</p> <p>e. The following ground-traffic restrictions shall apply to permanent oil and gas-related roads in the areas and time periods indicated:</p> <p>3. Major equipment, materials, and supplies to be used at oil and gas work sites in the Teshekpuk Lake</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|--|---|---|
| <b>GROUND TRANSPORTATION</b>   |   |   |
|  | Caribou Habitat Area shall be stockpiled prior to or after the period of May 20 through August 20 to minimize road traffic during that period.  | Caribou Habitat Area shall be stockpiled prior to or after the period of May 20 through August 20 to minimize road traffic during that period.  |
| <i>Alternative A Stipulation 50 and Alternatives B, C, and D Lease Stipulation K-5e.3</i> would be equally effective in reducing, but not totally eliminating impacts to <b>terrestrial mammals</b> , specifically TLH caribou, by reducing traffic during the summer in areas used by caribou, and equally effective in reducing impacts on <b>subsistence use patterns</b> by providing increased protection to caribou (High).  |   |   |
| 51. Chasing wildlife with ground vehicles is prohibited.   | Alaska State Statute (5 AAC 92.080)**   | Alaska State Statute (5 AAC 92.080)**   |
| <b>AIR TRAFFIC</b>   |   |   |
| <i>Alternative A Stipulation 51 and Alternatives B, C, and D Alaska State Statute (5 AAC 92.080)</i> would be equally effective in protecting <b>birds and terrestrial mammals</b> as chasing of wildlife using vehicles is prohibited under Alaska State Statute, which also applies to the Planning Area and would be applicable to all alternatives.  |   |   |
| 52. Use of aircraft larger than a Twin Otter for authorized activities in the Planning Area, including oil and gas activities, from May 20 through August 20 within the Teshekpuk Lake Caribou LUEA is prohibited, except in cases of emergency.   | <i>F-1 Required Operating Procedure</i><br><b>Objective:</b> Minimize the effects of low-flying aircraft on wildlife, traditional subsistence activities, and local communities.<br><b>Requirement/Standard:</b> The lessee shall ensure that aircraft used for permitted activities maintain altitudes according to the following guidelines:<br>a. Aircraft shall maintain an altitude of at least 1,500 feet above ground level (AGL) when within ½ mile of cliffs identified as raptor nesting sites from April 15 through August 15 and within ½ mile of known gyrfalcon nest sites from March 15 to August 15, unless doing so would endanger human life or violate safe flying practices. Permittees shall obtain information from the BLM necessary to plan flight routes when routes may go near falcon nests. | <i>F-1 Required Operating Procedure</i><br><b>Objective:</b> Minimize the effects of low-flying aircraft on wildlife, traditional subsistence activities, and local communities.<br><b>Requirement/Standard:</b> The lessee shall ensure that aircraft used for permitted activities maintain altitudes according to the following guidelines:<br>a. Aircraft shall maintain an altitude of at least 1,500 feet above ground level (AGL) when within ½ mile of cliffs identified as raptor nesting sites from April 15 through August 15 and within ½ mile of known gyrfalcon nest sites from March 15 to August 15, unless doing so would endanger human life or violate safe flying practices. Permittees shall obtain information from the BLM necessary to plan flight routes when routes may go near falcon nests. |
| 53. Helicopter overflights for BLM-permitted activities shall be suspended in the Goose Molting LUEA from June 15 through August 20.   | b. Aircraft shall maintain an altitude of at least 1,000 feet AGL (except for takeoffs and landings) over caribou winter ranges from October 1 through May 1, unless doing so would endanger human life or violate safe flying practices. Caribou wintering areas will be defined annually by the AO.   | b. Aircraft shall maintain an altitude of at least 1,000 feet AGL (except for takeoffs and landings) over caribou winter ranges from October 1 through May 1, unless doing so would endanger human life or violate safe flying practices. Caribou wintering areas will be defined annually by the AO.   |
| 54. Fixed-wing aircraft traffic takeoffs and landing for BLM-permitted activities in the Planning Area shall be limited to an average of one round-trip flight a day from May 20 through June 20 at aircraft facilities in the Teshekpuk Lake Caribou Habitat LUEA. Within the Goose Molting LUEA, fixed-wing aircraft use for such activities shall be restricted from June 15 to August 20 to flight corridors and frequencies established by BLM in consultation with the appropriate federal, state, and NSB regulatory and resource agencies. | c. The number of takeoffs and landings to support   | c. The number of takeoffs and landings to support   |
| 55. Aircraft shall maintain an altitude of at least 1,000 feet above ground level (AGL) (except for takeoffs and landings) over caribou winter ranges from October 1 through May 15 and 2,000 feet AGL over the Teshekpuk Lake Caribou Habitat LUEA from May 16 through July 31, unless doing so would endanger human life or violate safe flying practices.   |   |   |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|--|---|---|
| AIR TRAFFIC  |   |   |
| <p>56. Aircraft shall maintain an altitude of at least 1,500 feet AGL when within ½ mile of cliffs identified as raptor nesting sites from April 15 through August 5, unless doing so would endanger human life or violate safe flying practices. Aircraft shall maintain an altitude of 1,500 feet AGL when within ½ mile of known gyrfalcon nest sites from March 15 to April 15. Permittees shall obtain information from BLM necessary to plan flight routes near gyrfalcon nests.</p> | <p>oil and gas operations with necessary materials and supplies should be limited to the maximum extent possible. During the design of proposed oil and gas facilities, larger landing strips and storage areas should be considered so as to allow larger aircraft to be employed, resulting in fewer flights to the facility.</p> <p>d. Use of aircraft, especially rotary wing aircraft, near known subsistence camps and cabins or during sensitive subsistence hunting periods (spring goose hunting and fall caribou and moose hunting) should be kept to a minimum.</p> <p>e. Aircraft used for permitted activities shall maintain an altitude of at least 2,000 feet AGL (except for takeoffs and landings) over the Teshekpuk Lake Caribou Habitat Area (Map 2-2) from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices. Aircraft use (including fixed wing and helicopter) by oil and gas lessees in the Goose Molting Area (Map 2-2) should be minimized from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices.</p> <p><i>K-4h, i Lease Stipulation - Goose Molting Area</i><br/> <u>Objective:</u> Minimize disturbance to molting geese and loss of goose molting habitat in and around lakes in the Goose Molting Area.<br/> <u>Requirement/Standard:</u> In goose molting habitats, the following standards will be followed for permitted activities:</p> <p>h. Nonessential helicopter overflights by oil and gas lessees and all other users shall be reviewed and may be suspended in and around Goose Molting Area lakes from May 20 through August 20.</p> <p>i. Within the Goose Molting Area, use of fixed-wing aircraft by authorized users shall be restricted from May 20 to August 20. Restrictions may include 1) limited to two</p> | <p>oil and gas operations with necessary materials and supplies should be limited to the maximum extent possible. During the design of proposed oil and gas facilities, larger landing strips and storage areas should be considered so as to allow larger aircraft to be employed, resulting in fewer flights to the facility.</p> <p>d. Use of aircraft, especially rotary wing aircraft, near known subsistence camps and cabins or during sensitive subsistence hunting periods (spring goose hunting and fall caribou and moose hunting) should be kept to a minimum.</p> <p>e. Aircraft used for permitted activities shall maintain an altitude of at least 2,000 feet AGL (except for takeoffs and landings) over the Teshekpuk Lake Caribou Habitat Area (Map 2-2) from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices. Aircraft use (including fixed wing and helicopter) by oil and gas lessees in the Goose Molting Area (Map 2-2) should be minimized from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices.</p> <p><i>K-4j,k Lease Stipulation - Goose Molting Area</i><br/> <u>Objective:</u> Minimize disturbance to molting geese and loss of goose molting habitat in and around lakes in the Goose Molting Area.<br/> <u>Requirement/Standard (Development):</u> In Goose Molting Area, the following standards will be followed for permitted activities:</p> <p>j. Strategies to minimize ground traffic will be implemented from May 20 through August 20. These strategies may include limiting trips, use of convoys, different vehicle types, etc. to the extent practicable.</p> <p>k. Aircraft use (including fixed wing and helicopter) within the Goose Molting Area ,by authorized users shall be restricted from May 20 to August 20 unless doing so would</p> |



Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|---|--|
| <b>AIR TRAFFIC</b>  |   |  |
|   | <p>round-trip flights/week, and 2) restricted to flight corridors will be established by the BLM after discussions with appropriate federal, state, and NSB regulatory and resource agencies. Note: This site-specific stipulation is not intended to restrict flights necessary to survey wildlife to gain information necessary to meet the stated objective of this stipulation. However, flights necessary to gain this information would be restricted to the minimum necessary to collect such data.</p> <p><i>K-5e-4, 5, 6 Lease Stipulation - Teshekpuk Lake Caribou Habitat Area</i></p> <p><u>Objective:</u> Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect-relief, and migration.</p> <p><u>Requirement/Standard:</u> In the Teshekpuk Lake Caribou Habitat Area the following standards will be applied to permitted activities:</p> <ul style="list-style-type: none"> <li>e. The following ground-traffic restrictions shall apply to permanent oil and gas-related roads in the areas and time periods indicated: <ul style="list-style-type: none"> <li>4. Use of aircraft larger than a Twin Otter by authorized users of the Planning Area, including oil and gas lessees, from May 20 through August 20 within the Teshekpuk Lake Caribou Habitat Area, shall be for emergency purposes only.</li> <li>5. Fixed-wing aircraft takeoffs and landings by authorized users of the Planning Area shall be limited to an average of one round-trip flight per day from May 20 through June 20, at aircraft facilities within the Teshekpuk Lake Caribou Habitat Areas.</li> <li>6. Aircraft shall maintain a minimum height</li> </ul> </li> </ul> | <p>endanger human life or violate safe flying practices. Restrictions may include 1) limited to two round-trip flights/week, and 2) restricted to flight corridors will be established by the BLM after discussions with appropriate federal, state, and NSB regulatory and resource agencies. Note: This site-specific stipulation is not intended to restrict flights necessary to survey wildlife to gain information necessary to meet the stated objective of this stipulation. However, flights necessary to gain this information would be restricted to the minimum necessary to collect such data.</p> <p><i>K-5e-4, 5, 6 Lease Stipulation - Teshekpuk Lake Caribou Habitat Area</i></p> <p><u>Objective:</u> Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions the Teshekpuk Lake Caribou Habitat Area that are essential for all season use, including calving and rearing, insect-relief, and migration.</p> <p><u>Requirement/Standard:</u> In the Teshekpuk Lake Caribou Habitat Area the following standards will be applied to permitted activities:</p> <ul style="list-style-type: none"> <li>e. The following ground-traffic restrictions shall apply to permanent oil and gas-related roads in the areas and time periods indicated: <ul style="list-style-type: none"> <li>4. Use of aircraft larger than a Twin Otter by authorized users of the Planning Area, including oil and gas lessees, from May 20 through August 20 within the Teshekpuk Lake Caribou Habitat Area, shall be for emergency purposes only.</li> <li>5. Fixed-wing aircraft takeoffs and landings by authorized users of the Planning Area shall be limited to an average of one round-trip flight per day from May 20 through June 20, at aircraft facilities within the Teshekpuk Lake Caribou Habitat Areas.</li> <li>6. Aircraft shall maintain a minimum height</li> </ul> </li> </ul> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <b>AIR TRAFFIC</b>   |  |  |
|  | of 1,000 feet AGL (except for takeoffs and landings) over caribou winter ranges from October 1 through May 1, and 2,000 feet AGL over the Teshekpuk Lake Caribou Habitat Area from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices. | of 1,000 feet AGL (except for takeoffs and landings) over caribou winter ranges from October 1 through May 1, and 2,000 feet AGL over the Teshekpuk Lake Caribou Habitat Area from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices. |
| <p><i>Alternative A – Stipulation 52 and Alternatives B and C – ROPs F-1 and K-5(e)(4) and Alternative D ROPs F-1 and K-5(e)(4) provide the same and equal benefit in effectively reducing impacts to <b>birds, terrestrial mammals, endangered and threatened species</b>, and <b>subsistence</b> use by limiting the size of the aircraft that can be utilized in the Teshekpuk Lake Caribou Habitat Area to a Twin Otter or smaller during the same critical (caribou calving) time period (May 20 – August 20). Some studies have shown that larger airplanes have a greater disturbance effect that smaller airplanes at the same distance, or cause such an effect at a greater distance. A reduction in the size of the airplane during the caribou calving periods should logically effect a reduction in caribou disturbance. While these stipulations are targeted at reducing impacts to caribou in this important area, they should result in similar reductions in potential impact to other sensitive wildlife species as well as the <b>subsistence</b> activities associated with these wildlife species (Moderate).</i></p> <p><i>Alternative A – Stipulation 53 and Alternatives B and C – ROPs F-1 and K-4(h) and Alternative D ROPs F-1 and K-4(k) provide the same and equal benefit in effectively reducing impacts to <b>birds, terrestrial mammals, endangered and threatened species</b>, and <b>subsistence</b> use by limiting the number of helicopter landings and take-offs during critical periods (peak waterfowl nesting/molting period) in the Goose Molting Area. Helicopter flights have been shown in some instances and situations to disturb wildlife. A reduction in the number of flights should provide a concomitant reduction in wildlife disturbance. While these stipulations are targeted at reducing impacts to geese in this important area, they should result in similar reductions in potential impact to other wildlife species as well as the subsistence activities associated with these wildlife species (Moderate).</i></p> <p><i>Alternative A – Stipulation 54 and Alternatives B and C – ROPs F-1, K-4(i) and K-5(e)(5), and Alternative D ROPs F-1, K-4(k), and K-5(e)(5) provide the equal benefit in effectively reducing impacts to <b>birds, terrestrial mammals, endangered and threatened species</b>, and <b>subsistence</b> use by limiting the number of fixed wing aircraft landings and take-offs during the same critical periods in the Teshekpuk Lake Caribou Habitat Area (peak caribou calving period) and restricting the number and location aircraft flights in the Goose Molting Area (peak waterfowl nesting/molting period). Aircraft flights have been shown in some instances and situations to disturb wildlife. A reduction in the number of flights should provide a concomitant reduction in wildlife disturbance and subsistence activities associated with these wildlife species. <i>ROPs F-1(c) and (d) for Alternatives B, C, and D</i> actually provide additional mitigation for beyond that provided for <i>Alternative A</i>. <i>ROP F-1(b)</i> requires lessees to minimize the number of aircraft take-offs and landings associated with their operations over the entire planning area, and <i>F-1(d)</i> specifically directs the lessees to limit aircraft use near known <b>subsistence camps and cabins</b> during hunting periods (Moderate).</i></p> <p><i>Alternative A – Stipulation 55 and Alternatives B, C, and D – ROPs F-1(b), F-1(e) and K-5(e)(6) provide the same and equal benefit in effectively reducing impacts to <b>birds, terrestrial mammals, endangered and threatened species</b>, and <b>subsistence</b> use by establishing a minimum altitude that aircraft may be flown over caribou winter range (1,000 ft) during winter and over the Teshekpuk Lake Caribou Habitat Area (2,000 ft) during the calving period. Approximately the same time periods apply in all the above-referenced stipulations and ROPs and are designed to coincide with caribou wintering and peak calving. Studies have shown that wildlife disturbance tends to diminish with altitude, therefore holding aircraft flights to minimum altitudes should reduce impacts. While these stipulations are targeted at reducing impacts to caribou in these important areas, they should result in similar reductions in potential impact to other sensitive wildlife species as well as the <b>subsistence</b> activities associated with these wildlife species (Moderate).</i></p> <p><i>Alternative A – Stipulation 56 and Alternatives B, C, and D – ROPs F-1(a) provide equal benefit in effectively reducing impacts to <b>birds, terrestrial mammals, endangered and threatened species</b>, and <b>subsistence</b> use by establishing a minimum altitude (1,500 ft) that aircraft may be flown when within ½ mile of gyrfalcon nests or cliffs identified as raptor nest sites, during the nesting period. The identified nesting period is approximately the same for each of the identified stipulations and ROPs. Studies have shown that wildlife disturbance tends to diminish with altitude and distance, therefore holding aircraft flights to minimum altitudes within certain distances should reduce any potential impacts. While these stipulations are targeted at reducing impacts to gyrfalcons and other raptors at their nesting sites, they should result in similar reductions in potential impact to other sensitive</i></p> |  |  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>AIR TRAFFIC</b>  |   |   |
| wildlife species in the area as well as the <b>subsistence activities</b> associated with these wildlife species (Moderate).  |   |   |
| 57. Hazing of wildlife by aircraft is prohibited.   | Alaska State Statute (5 AAC 92.080)**   | Alaska State Statute (5 AAC 92.080)**   |
| <i>Alternative A Stipulation 57 and Alternatives B, C, and D Alaska State Statute (5 AAC 92.080) would be equally effective in protecting <b>birds and terrestrial mammals</b> as chasing of wildlife using vehicles is prohibited under Alaska State Statute, which also applies to the Planning Area and would be applicable to all alternatives.</i>   |   |   |
| 58. Upon field abandonment or expiration of a lease or oil- and gas-related permit, all facilities shall be removed and sites rehabilitated to the satisfaction of the AO, in consultation with appropriate federal, state, and NSB regulatory and resource agencies. The AO may determine that it is in the best interest of the public to retain some or all of the facilities. Lessees shall comply with all exploration and development bonding required by law and regulation (43 CFR 3154.1 and 3134.1). No exceptions shall be granted to this provision.  | <b>G-1 Lease Stipulation</b><br><b>Objective:</b> Ensure the final disposition of the land meets the current and future needs of the public.<br><b>Requirement/Standard:</b> Upon abandonment or expiration of the lease, all oil- and gas-related facilities shall be removed and sites rehabilitated to as near the original condition as practicable, subject to the review of the AO. The AO may determine that it is in the best interest of the public to retain some or all facilities.  | <b>G-1 Lease Stipulation</b><br><b>Objective:</b> Ensure the final disposition of the land meets the current and future needs of the public.<br><b>Requirement/Standard:</b> Upon abandonment or expiration of the lease, all oil- and gas-related facilities shall be removed and sites rehabilitated to as near the original condition as practicable, subject to the review of the AO. The AO may determine that it is in the best interest of the public to retain some or all facilities.  |
| <i>Alternative A – Stipulation 58 and Alternatives B, C, and D – Lease Stipulation G-1 provide equal benefits in the avoidance and minimization of potential impacts to <b>vegetation, water resources, water quality, and estuarine water quality</b>, by mandating the removal of all or most oil and gas facilities and rehabilitation of the sites after abandonment or expiration of the lease. Removal of facilities and rehabilitation of the site should prevent the possibility of petroleum releases from abandoned facilities that could negatively affect soils, water quality and water resources, and restore any previously affected drainage patterns that could affect water resources (High). The rehabilitation should eventually permit or accelerate the return of natural vegetation communities, however the effectiveness is considered moderate as some gravel may be left in place, and because in some areas rehabilitation may not yield the same vegetation type (Moderate).</i> |   |   |
| <b>SUBSISTENCE</b>  |   |   |
| 59. During exploration, development, and production, the lessee shall develop and implement a plan, approved by the AO in consultation with the Research and Monitoring Team and the Subsistence Advisory Panel, to monitor the effects of activities on subsistence. The lessee shall provide biannual reports to BLM, the Research and Monitoring Team, and the Subsistence Advisory Panel.   | <b>H-1c-1, 5 Required Operating Procedure</b><br><b>Objective:</b> Provide opportunities for participation in planning and decision making to prevent unreasonable conflicts between subsistence uses and oil and gas and related activities.<br><b>Requirement/Standard:</b> Lessee/permittee shall consult directly with affected communities using the following guidelines: <ul style="list-style-type: none"> <li>c. A subsistence plan addressing the following items must be submitted:               <ul style="list-style-type: none"> <li>1. A detailed description of the monitoring effort to take place, including process, procedures, personnel involved and points of contact both at the work site and in</li> </ul> </li> </ul> | <b>H-1c-1, 5 Required Operating Procedure</b><br><b>Objective:</b> Provide opportunities for participation in planning and decision making to prevent unreasonable conflicts between subsistence uses and oil and gas and related activities.<br><b>Requirement/Standard:</b> Lessee/permittee shall consult directly with affected communities using the following guidelines: <ul style="list-style-type: none"> <li>c. A subsistence plan addressing the following items must be submitted:               <ul style="list-style-type: none"> <li>1. A detailed description of the monitoring effort to take place, including process, procedures, personnel involved and points of contact both at the work site and in</li> </ul> </li> </ul> |
| 60. Lessees shall not unreasonably restrict access by subsistence users in oil field development areas. <ul style="list-style-type: none"> <li>a. Lessees shall establish procedures for entrance to facilities, the use of roads, and firearms discharge. These procedures shall be developed in consultation with affected local communities, NSB, and the Subsistence Advisory Panel and</li> </ul>  |   |   |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <p style="text-align: center;"><b>SUBSISTENCE</b></p> <p>be approved by the AO. In cases where the lessee and the Panel disagree, the AO will determine the appropriate procedure.</p> <p>b. Lessees shall develop and distribute information about how to conduct subsistence activities in development areas safely (so equipment is not damaged and people are not endangered) to the communities through public meetings, newsletters, radio, and signs in both English and Inupiaq.</p> <p>61. Exploration and development and production operations shall be conducted in a manner that prevents unreasonable conflicts between the oil and gas industry and subsistence activities. Prior to submitting an exploration plan or development and production plan (including associated oil-spill contingency plans) to the BLM, the lessee shall consult with potentially affected subsistence communities (e.g., Barrow, Nuiqsut, Atkasuk, or Anaktuvuk Pass), NSB, and the Subsistence Advisory Panel to discuss potential conflicts with the siting, timing, and methods of proposed operations and safeguards or mitigating measures that could be implemented by the operator to prevent unreasonable conflicts. Through this consultation, the lessee shall make every reasonable effort, including such mechanisms as a conflict avoidance agreement, to ensure that exploration, development, and production activities are compatible with subsistence hunting, fishing, and other subsistence activities and will not result in unreasonable interference with subsistence harvests.</p> <p>A discussion of resolutions reached during this consultation process, specific conflict avoidance agreement(s), and plans for continued consultation shall be included in the permit application, exploration plan, or the development and production plan. In particular, the lessee shall show</p> |  |  |
|   | <p>the local community.</p> <p>5. Procedures necessary to facilitate access by subsistence users to conduct their activities.</p> <p><i>H-1 Required Operating Procedure as in No. 26 above.</i></p> | <p>the local community.</p> <p>5. Procedures necessary to facilitate access by subsistence users to conduct their activities.</p> <p><i>H-1 Required Operating Procedure as in No. 26 above.</i></p> |

**Table 2-2. Continued.**

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action |
|--|--|--|
| <b>SUBSISTENCE</b>   |  |  |
| <p>in the plan how its activities, in combination with other activities in the area, will be scheduled and located to prevent unreasonable conflicts with subsistence activities. Lessees also shall include a discussion of multiple or simultaneous operations, such as exploration and delineation well drilling and seismic activities, that can be expected to occur during operations to more accurately assess the potential for any cumulative effects. Communities, individuals, and other entities who were involved in the consultation shall be identified in the application or plan. The AO shall send a copy of the exploration plan or development and production plan (including associated oil-spill-contingency plans) to the potentially affected communities, the NSB, and the Subsistence Advisory Panel at the time they are submitted to the BLM to allow concurrent review and comment as part of the plan approval process.</p> <p>In the event no agreement is reached between the parties, the AO shall consult with representatives from the subsistence communities, Subsistence Advisory Panel, NSB, and the lessee(s) to specifically address the conflict and attempt to resolve the issues before making a final determination on the adequacy of the measures taken to prevent unreasonable conflicts with subsistence harvests.</p> <p>The lessee shall notify the AO of all concerns expressed by subsistence users during operations and of steps taken to address such concerns. Lease-related use will be restricted, when the AO determines it is necessary to prevent unreasonable conflicts with local subsistence hunting, fishing, and other subsistence activities.</p> <p>In enforcing this stipulation, the AO will work with other agencies and the public to assure that potential conflicts are identified and efforts are taken to avoid these conflicts, e.g., planning</p> |  |  |

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|--|--|---|
| <b>SUBSISTENCE</b>   |  |   |
| <p>seismic operations to avoid traditional land use sites and allotments. These efforts may include seasonal drilling restrictions, seismic restrictions, and directional drilling requirements or use of other technologies deemed appropriate by the AO.</p> <p>The consultation process described in this stipulation will also be required of applicants for geophysical (i.e. seismic) permits to address potential conflicts with the setback requirements for cabins and campsites described in <i>Stipulation 23</i>. This consultation will help provide information to the AO on the advisability of modifying or waiving the restriction on seismic activity identified in <i>Stipulation 23</i>.</p> <p>62. The following subsistence, wildlife habitat, and traditional/cultural land use areas are of significant concern to local communities and will be given special consideration during the consultation process outlined in <i>Stipulation 61</i>:</p> <ul style="list-style-type: none"> <li>a. <b>Long-term cabins and campsites:</b> a 2-mile zone around the cabins and campsites.</li> <li>b. <b>Ikpikpuk River:</b> a 2-mile zone from the east bank of the river.</li> <li>c. <b>Miguakiak River:</b> a 3-mile zone from each bank of the river.</li> <li>d. <b>Fish Creek:</b> (1) a 3-mile zone from each bank downstream from Sec. 31. T. 11 N., R. 1 E. U.M.; (2) a 2-mile zone from each bank in and upstream from Sec. 31, T. 11 N., R. 1 E. U.M.</li> <li>e. <b>Judy Creek:</b> a 2-mile zone from each bank of the creek.</li> <li>f. <b>Kogosukruk River:</b> a 2-mile zone from each bluff (or bank if there is no bluff) of the river (including the four tributaries off the southern bank) downstream from T. 2 N., R. 3 W., U.M.</li> <li>g. <b>Kikiakrorak River:</b> a 2-mile zone from each bluff (or bank if there is no bluff) of the river downstream from T. 2 N, R. 4 W., U.M.</li> <li>h. <b>Colville River:</b> a 2-mile zone from the west</li> </ul> | <p><i>H-2 Required Operating Procedures as in No. 23 above.</i></p><br><br><br><br><br><br><br><br><br><br><p><i>K-1 Lease Stipulation – Rivers as in No. 39 above.<br/>H-1 Required Operating Procedure as in No. 26 above.<br/>H-2 Required Operating Procedures as in No. 23 above.</i></p> | <p><i>H-2 Required Operating Procedures as in No. 23 above</i></p><br><br><br><br><br><br><br><br><br><br><p><i>K-1 Lease Stipulation – Rivers as in No. 39 above.<br/>H-1 Required Operating Procedure as in No. 26 above.<br/>H-2 Required Operating Procedures as in No. 23 above.</i></p> |

- a. **Long-term cabins and campsites:** a 2-mile zone around the cabins and campsites.
- b. **Ikpikpuk River:** a 2-mile zone from the east bank of the river.
- c. **Miguakiak River:** a 3-mile zone from each bank of the river.
- d. **Fish Creek:** (1) a 3-mile zone from each bank downstream from Sec. 31, T. 11 N., R. 1 E. U.M.; (2) a 2-mile zone from each bank in and upstream from Sec. 31, T. 11 N., R. 1 E. U.M.
- e. **Judy Creek:** a 2-mile zone from each bank of the creek.
- f. **Kogosukruk River:** a 2-mile zone from each bluff (or bank if there is no bluff) of the river (including the four tributaries off the southern bank) downstream from T. 2 N., R. 3 W., U.M.
- g. **Kikiakrorak River:** a 2-mile zone from each bluff (or bank if there is no bluff) of the river downstream from T. 2 N, R. 4 W., U.M.
- h. **Colville River:** a 2-mile zone from the west

***K-1 Lease Stipulation – Rivers as in No. 39 above.  
H-1 Required Operating Procedure as in No. 26 above.  
H-2 Required Operating Procedures as in No. 23  
above.***

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>SUBSISTENCE</b>  |  |  |
| <p>bluff (or bank if there is no bluff) extending the length of river in the Colville River Raptor, Passerine, and Moose LUEA.</p> <p>In addition, a permittee or lessee engaged in oil and gas related activity shall consult with the BLM, USFWS, ADFG, and the NSB regarding wildlife concerns prior to submitting a geophysical (i.e. seismic) permit, exploration plan, or development and protection plan involving activity within the 2-mile zones around the Kogosukruk (and its tributaries), Kikiakrorak, and Colville rivers described above. In the event that the permittee or lessee and the agencies are unable to reach agreement on steps necessary to address wildlife concerns, the AO will consult with the other agencies and the permittee or lessee before making a determination on the adequacy of the measures taken to prevent conflicts with wildlife.</p> |  |  |
| <p><i>Alternative A – Stipulations 59, 60, and 61 and Alternatives B, C, and D – ROP H-1(c)</i> provide equal benefits in the avoidance and minimization of potential impacts to <b>subsistence harvest patterns, sociocultural systems</b>, as well as address environmental justice concerns, by mandating that lessees consult with subsistence users, and develop and implement a plan to prevent unreasonable conflicts between subsistence uses and oil and gas related activities. The plan must provide procedures that facilitate access by subsistence users, and provide follow-up monitoring to document the effectiveness. (Moderate). The effectiveness of <i>Stipulation 61 (Alternative A) and ROP H-2</i> are shown above in No. 23. Effectiveness of <i>Stipulations 59-62 and Lease Stipulation K-1 (Alternatives B, C, D)</i> is indicated above in No. 39.</p>     |  |  |
| <b>ORIENTATION PROGRAM</b>  |  |  |
| <p>63. The lessee shall include in any application for permit to drill a proposed orientation program for all personnel involved in exploration or development and production activities (including personnel of lessee's agents, contractors, and subcontractors) for review and approval by the AO. The program shall be designed in sufficient detail to inform individuals working on the project of specific types of environmental, social, and cultural concerns that relate to the planning area. The program shall address the importance of not disturbing archaeological and biological resources and habitats, including endangered species, fisheries, bird colonies, and marine mammals and provide guidance</p>  | <p><b><i>I-1 Required Operating Procedure</i></b><br/> <b>Objective:</b> Minimize cultural and resource conflicts.<br/> <b>Requirement/Standard:</b> All personnel involved in oil and gas and related activities shall be provided information concerning applicable stipulations, ROPs, standards, and specific types of environmental, social, traditional, and cultural concerns that relate to the region. The lessee/permittee shall ensure that all personnel involved in permitted activities shall attend an orientation program at least once a year. The proposed orientation program shall be submitted to the AO for review and approval and should:</p> <p>a. Provide sufficient detail to notify personnel of applicable stipulations and ROPs as well as</p> | <p><b><i>I-1 Required Operating Procedure</i></b><br/> <b>Objective:</b> Minimize cultural and resource conflicts.<br/> <b>Requirement/Standard:</b> All personnel involved in oil and gas and related activities shall be provided information concerning applicable stipulations, ROPs, standards, and specific types of environmental, social, traditional, and cultural concerns that relate to the region. The lessee/permittee shall ensure that all personnel involved in permitted activities shall attend an orientation program at least once a year. The proposed orientation program shall be submitted to the AO for review and approval and should:</p> <p>a. Provide sufficient detail to notify personnel of applicable stipulations and ROPs as well as</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
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| <p style="text-align: center;"><b>ORIENTATION PROGRAM</b></p> <p>on how to avoid disturbance. Guidance shall include the production and distribution of information cards on endangered and/or threatened species in the planning area. The program shall be designed to increase sensitivity and understanding of personnel to community values, customs, and lifestyles in areas in which personnel will be operating. The orientation program shall also include information concerning avoidance of conflicts with subsistence, commercial fishing activities, and pertinent mitigation.</p> <p>The program shall be attended at least once a year by all personnel involved in on-site exploration or development and production activities (including personnel of lessee's agents, contractors, and subcontractors) and all supervisory and managerial personnel involved in lease activities of the lessee and its agents, contractors, and subcontractors. Individual training is transferable from one facility to another except for elements of the training specific to a particular site.</p> <p>Lessees shall maintain a record onsite of all personnel who attend the program for so long as the site is active, though not to exceed the 5 most recent years of operations. This record shall include the name and dates(s) of attendance of each attendee.</p> |   |   |
|  | <p>inform individuals working on the project of specific types of environmental, social, traditional and cultural concerns that relate to the region.</p> <p>b. Address the importance of not disturbing archaeological and biological resources and habitats, including endangered species, fisheries, bird colonies, and marine mammals, and provide guidance on how to avoid disturbance.</p> <p>c. Include guidance on the preparation, production, and distribution of information cards on endangered and/or threatened species.</p> <p>d. Be designed to increase sensitivity and understanding of personnel to community values, customs, and lifestyles in areas in which personnel will be operating.</p> <p>e. Include information concerning avoidance of conflicts with subsistence, commercial fishing activities, and pertinent mitigation.</p> <p>f. Include information for aircraft personnel concerning subsistence activities and areas/seasons that are particularly sensitive to disturbance by low-flying aircraft. Of special concern is aircraft use near traditional subsistence cabins and campsites, flights during spring goose hunting and fall caribou and moose hunting seasons, and flights near North Slope communities.</p> <p>g. Provide that individual training is transferable from one facility to another except for elements of the training specific to a particular site.</p> <p>h. Include on-site records of all personnel who attend the program for so long as the site is active, though not to exceed the 5 most recent years of operations. This record shall include the name and dates(s) of attendance of each attendee.</p> <p>i. Include a module discussing bear interaction plans to minimize conflicts between bears and</p> | <p>inform individuals working on the project of specific types of environmental, social, traditional and cultural concerns that relate to the region.</p> <p>b. Address the importance of not disturbing archaeological and biological resources and habitats, including endangered species, fisheries, bird colonies, and marine mammals, and provide guidance on how to avoid disturbance.</p> <p>c. Include guidance on the preparation, production, and distribution of information cards on endangered and/or threatened species.</p> <p>d. Be designed to increase sensitivity and understanding of personnel to community values, customs, and lifestyles in areas in which personnel will be operating.</p> <p>e. Include information concerning avoidance of conflicts with subsistence, commercial fishing activities, and pertinent mitigation.</p> <p>f. Include information for aircraft personnel concerning subsistence activities and areas/seasons that are particularly sensitive to disturbance by low-flying aircraft. Of special concern is aircraft use near traditional subsistence cabins and campsites, flights during spring goose hunting and fall caribou and moose hunting seasons, and flights near North Slope communities.</p> <p>g. Provide that individual training is transferable from one facility to another except for elements of the training specific to a particular site.</p> <p>h. Include on-site records of all personnel who attend the program for so long as the site is active, though not to exceed the 5 most recent years of operations. This record shall include the name and dates(s) of attendance of each attendee.</p> <p>i. Include a module discussing bear interaction plans to minimize conflicts between bears and</p> |



Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action |
|--|--|--|
| <b>ORIENTATION PROGRAM</b>   |  |  |
|  | humans.  | humans.  |
| <p>Alternative A <i>Stipulation 63 and Alternatives B, C, and D ROP I-1</i> would be equally effective in reducing the impacts to <b>vegetation; birds; terrestrial mammals; endangered and threatened species; and subsistence</b> species and their users by making personnel involved in oil and gas activities more aware of the applicable stipulations and ROPs and their purpose. The stipulations should be equally effective in reducing disturbance to birds by providing all personnel with information concerning applicable required operating procedures and stipulations, and on the importance of not disturbing biological resources, habitats, and bird colonies. Personnel would be instructed annually on the required methods of handling garbage and waste which should help avoid the dumping of garbage and other wastes onto the tundra; impacts on <b>visual resources, wild and scenic river and wilderness</b>, should therefore be reduced, as well as make oil and gas sites less attractive for predators. Without this stipulation and ROP we would expect greater impacts on fish, birds, and terrestrial mammals and declines in outstandingly remarkable values for fish, wildlife and subsistence use. <i>Stipulation 63 and ROP I-1</i> would also reduce cultural conflicts as well as address potential <b>environmental justice</b> concerns by providing a cultural orientation program for all oil and gas workers involved in Planning Area activities in order to minimize cultural and resource conflicts with local inhabitants. Also, the stipulation would include information for aircraft personnel concerning subsistence activities and area/seasons that are particularly sensitive to disturbance by low flying aircraft. In addition to the training program required of all oil and gas workers, a module discussing bear interaction and minimizing conflicts between bears and humans would be included.</p> |  |  |
| <b>TRADITIONAL LAND USE SITES</b>  |  |  |
| 64. Lessees shall conduct an inventory of known traditional land use sites prior to any field activity. This inventory will be compiled from sites listed in the most current Traditional Land Use Inventory available from the NSB's Inupiat History, Language, and Cultural Commission, and shall be approved by the AO. Based on this inventory, the lessee shall develop a plan to avoid these sites and mitigate any potential damage that could result from field activities. The plan shall indicate how access to the site by local subsistence users will be provided. Lessees shall submit copies of the plan to BLM and the Subsistence Advisory Panel with any application for permit to drill.  | <i>H-1 Required Operating Procedure as in No 26 above.</i>   | <i>H-1 Required Operating Procedure as in No 26 above.</i>   |
| 65. It is the responsibility of the authorized user to ensure that all individuals brought to the planning area under its auspices adhere to these stipulations. Authorized users of the planning area shall provide all employees, contractors, subcontractors, and clients with a briefing regarding stipulations applicable to the lease and/or permit. A copy of applicable stipulations will be posted in a conspicuous place in each work site and campsite.   | <i>I-1 Required Operating Procedure as in No 63 above.</i>   | <i>I-1 Required Operating Procedure as in No 63 above.</i>   |
| Effectiveness of <i>Stipulations 64 and 65 and ROP H-1</i> shown in No. 26 above (Moderate).   |  |  |

**Table 2-2. Continued.**

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>TRADITIONAL LAND USE SITES</b>   |   |   |
| Effectiveness of <i>Stipulations 64 and 65 and ROP I-1</i> shown in No. 63 above (Moderate).  |   |   |
| <b>OTHER ACTIVITIES</b>   |   |   |
| 66. The authorized user shall protect all survey monuments and be responsible for survey costs if remuneration is required as a result of the user's actions.   | Federal Law (18 USC 1858)**   | Federal Law (18 USC 1858)**   |
| <i>Stipulation 66 and Federal Law 18 USC 1858</i> would be equally effective in ensuring that survey monuments and bench marks are protected. According to 18 USC 1858, “Whoever willfully destroys, defaces, changes, or removes to another place any section corner, quarter-section corner, or meander post, on any Government line of survey, or willfully cuts down any witness tree or any tree blazed to mark the line of a Government survey, or willfully defaces, changes, or removes any monument or bench mark of any Government survey, shall be fined under this title or imprisoned not more than six months, or both” (High). |   |   |
| 67. All activities shall be conducted to avoid or minimize disturbance to vegetation.   | <i>C-2 Required Operating Procedure as in No. 24 above.</i><br><i>D-2 Required Operating Procedure as in No. 27 above.</i><br><i>E-5 Required Operating Procedure as in No. 32 above.</i> | <i>C-2 Required Operating Procedure as in No. 24 above.</i><br><i>D-2 Required Operating Procedure as in No. 27 above.</i><br><i>E-5 Required Operating Procedure as in No. 32 above.</i> |
| Effectiveness of <i>Stipulation 67 and ROP C-2</i> shown in No. 24 above.<br>Effectiveness of <i>Stipulation 67 and ROP D-2</i> shown in No. 27 above.<br>Effectiveness of <i>Stipulation 67 and ROP E-5</i> shown in No. 32 above.   |   |   |
| 68. The BLM, through the AO, reserves the right to impose closure of any area to operators in periods when fire danger or other dangers to natural resources are severe.  | Federal Law (40 CFR 9212.2)**   | Federal Law (40 CFR 9212.2)**   |
| <i>Alternative A Stipulation 68 and Alternatives B, C, and D Federal Law 40 CFR 9212.2</i> would be equally effective, as <i>40 CFR 212.2</i> provides policy for BLM fire management activities and specifically states: “To prevent wildfire or facilitate its suppression, an authorized officer may issue fire prevention orders that close entry to, or restrict uses of, designated public lands” (High).   |   |   |
| 69. The authorized user shall be financially responsible for any damage done by a wildfire caused by its operations.  | Federal Law (4 CFR 103-104; 43 CFR 2920.1-2; 43 CFR 9212.1; 43 CFR 9212.4; 43 CFR 9239; BLM Fire Trespass Handbook H-9238)**  | Federal Law (4 CFR 103-104; 43 CFR 2920.1-2; 43 CFR 9212.1; 43 CFR 9212.4; 43 CFR 9239; BLM Fire Trespass Handbook H-9238)**  |
| <i>Alternative A Stipulation 69 and Alternatives B, C, and D Federal Law (4 CFR 103-104; 43 CFR 2920.1-2; 43 CFR 9212.1; 43 CFR 9212.4; 43 CFR 9239; BLM Fire Trespass Handbook H-9238)</i> would be equally effective in ensuring that the responsible party is financially responsible for any damage done by a wildlife. The <i>Federal Laws and BLM Handbook H-9238</i> identified above would complement <i>Stipulation 69</i> and would provide procedures for identifying and prosecuting the responsible party.   |   |   |
| 70. Construction camps are prohibited on frozen lakes and river ice. Siting of construction camps on river sand and gravel bars is allowed and, where feasible, encouraged. Where leveling of trailers or modules is required and the surface has a vegetative mat,   | <i>Required Operating Procedure A-5 as in No. 14 above.</i><br><i>Lease Stipulation E-2 as in No.41 above.</i>  | <i>Required Operating Procedure A-5 as in No. 14 above.</i><br><i>Lease Stipulation E-2 as in No.41 above.</i>  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>OTHER ACTIVITIES</b>   |  |  |
| leveling shall be accomplished through blocking rather than use of a bulldozer.   |  |  |
| Effectiveness of <i>Stipulation 70 and ROP A-5</i> shown in No. 14 above.<br>Effectiveness of <i>Stipulation 70 and Lease Stipulation E-2</i> shown in No. 41 above.  |  |  |
| 71. Use of pesticides without the specific authority of the AO is prohibited.   | Federal Law** (unlikely that BLM would use pesticides in Planning Area)  | Federal Law** (unlikely that BLM would use pesticides in Planning Area)  |
| <i>Alternative A Stipulation 70 and Alternatives B, C, and D Federal Law</i> should provide the same benefit in reducing potential effects on <b>fish and fish habitat</b> from the improper use of pesticides. (Moderate)  |  |  |
| 72. The feeding of wildlife by authorized users is prohibited.  | Alaska Administrative Coded 5 AAC 92.230**   | Alaska Administrative Code 5 AAC 92.230**  |
| <i>Alternative A Stipulation 72 and Alternatives B, C, and D Alaska Administrative Code 5 AAC 92.230</i> are equally effective in prohibiting the feeding of wildlife. 5 AAC 92.230 applies to all activities in the Planning Area under all alternatives. Specifically, the law states: A person may not intentionally feed a moose (except under terms of a permit issued by the department), bear, wolf, coyote, fox, or wolverine, or negligently leave human food, pet food, or garbage in a manner that attracts these animals” (Moderate). |  |  |
| 73. Hunting and trapping by lessee's employees, agents, and contractors are prohibited when persons are on “work status.” Work status is defined as the period during which an individual is under the control and supervision of an employer. Work status is terminated when the individual’s shift ends and he/she returns to a public airport (e.g., Fairbanks, Barrow, Nuiqsut, or Deadhorse). Use of lessee facilities, equipment, or transport for personnel access or aid in hunting and trapping is prohibited.                           | <b><i>E-13 Required Operating Procedure as in No. 63 above.</i></b>  | <b><i>E-13 Required Operating Procedure as in No. 63 above.</i></b>  |
| Effectiveness of <i>Stipulations 64 and 65</i> shown in No. 63 above.   |  |  |
| 74. Lessees shall conduct a cultural and paleontological resources survey prior to any ground-disturbing activity. Upon finding any potential cultural or paleontological resource, the lessee or their designated representative shall notify the AO and suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the AO.  | <b><i>E-13 Required Operating Procedure</i></b><br><b><u>Objective:</u></b> Protect cultural and paleontological resources.<br><b><u>Requirement/Standard:</u></b> Lessees shall conduct a cultural and paleontological resources survey prior to any ground-disturbing activity. Upon finding any potential cultural or paleontological resource, the lessee or their designated representative shall notify the AO and suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the AO.<br><b>Paleontological resource protection addressed in NEPA review of project.</b> | <b><i>E-13 Required Operating Procedure</i></b><br><b><u>Objective:</u></b> Protect cultural and paleontological resources.<br><b><u>Requirement/Standard:</u></b> Lessees shall conduct a cultural and paleontological resources survey prior to any ground-disturbing activity. Upon finding any potential cultural or paleontological resource, the lessee or their designated representative shall notify the AO and suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the AO.<br><b>Paleontological resource protection addressed in NEPA review of project.</b> |
| <i>Alternative A Stipulation 74 and Alternatives B, C, and D ROP E-13</i> would provide equal benefit in reducing potential impacts to <b>cultural and paleontological resources</b> by requiring surveys for these resources and authorization of the AO before conducting any ground-disturbing activities. Additionally, if the survey was to miss such resources and  |  |  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <b>OTHER ACTIVITIES</b>  |  |  |
| they were discovered during construction, the AO must be notified and mitigation measures would be set in motion (High).   |  |  |
| <p>75. Petroleum exploration and production activities are prohibited within ½ mile of occupied grizzly bear dens, identified by the ADFG, unless alternative mitigation measures are approved by the AO in consultation with appropriate federal, state, and NSB regulatory and resource agencies.</p>  | <p><b>C-1 Required Operating Procedure</b><br/> <u>Objective:</u> Protect grizzly bear, polar bear, and marine mammal denning and/or birthing locations.<br/> <u>Requirement/Standard:</u></p> <ol style="list-style-type: none"> <li>Cross-country use of heavy equipment and seismic activities is prohibited within ½ mile of occupied grizzly bear dens identified by the ADFG unless alternative mitigation measures are approved by the AO in consultation with the ADFG.</li> </ol>   | <p><b>C-1 Required Operating Procedure</b><br/> <u>Objective:</u> Protect grizzly bear, polar bear, and marine mammal denning and/or birthing locations.<br/> <u>Requirement/Standard:</u></p> <ol style="list-style-type: none"> <li>Cross-country use of heavy equipment and seismic activities is prohibited within ½ mile of occupied grizzly bear dens identified by the ADFG unless alternative mitigation measures are approved by the AO in consultation with the ADFG.</li> </ol>   |
| <p><i>Alternative A Stipulation 75 and Alternatives B, C, and D - ROP C-1 would provide equal benefit in reducing potential impacts on <b>terrestrial mammals</b> by requiring avoidance of known grizzly bear dens. The ½ mile setback is thought to be sufficient to prevent disturbance to denning grizzly bears from seismic operations and other overland moves. The success of this ROP would be relative to the effort made to locate bear dens before initiating work (Moderate).</i></p>  |  |  |
| <p>76. Oil and gas lessees and their contractors and subcontractors will prepare and implement bear-interaction plans to minimize conflicts between bears and humans. These plans shall include measures to: (a) minimize attraction of bears to the drill sites; (b) organize layout of buildings and work areas to minimize human/bear interactions; (c) warn personnel of bears near or on drill sites and identify proper procedures to be followed; (d) if authorized, deter bears from the drill site; (e) provide contingencies in the event bears do not leave the site or cannot be deterred by authorized personnel; (f) discuss proper storage and disposal of materials that may be toxic to bears; and (g) provide a systematic record of bears on the site and in the immediate area. The lessee's shall develop educational programs and camp layout and management plans as they prepare their lease operations plans. These plans shall be developed in consultation with appropriate federal, state, and NSB regulatory and resource agencies and submitted to the AO.</p> | <p><b>A-8 Required Operating Procedure</b><br/> <u>Objective:</u> Minimize conflicts resulting from interaction between humans and bears during leasing and associated activities.<br/> <u>Requirement:</u> Oil and gas lessees and their contractors and subcontractors will, as a part of preparation of lease operation planning, prepare and implement bear-interaction plans to minimize conflicts between bears and humans. These plans shall include measures to:</p> <ol style="list-style-type: none"> <li>Minimize attraction of bears to the drill sites.</li> <li>Organize layout of buildings and work areas to minimize human/bear interactions.</li> <li>Warn personnel of bears near or on drill sites and identify proper procedures to be followed.</li> <li>Establish procedures, if authorized, to discourage bears from approaching the drill site.</li> <li>Provide contingencies in the event bears do not leave the site or cannot be discouraged by authorized personnel.</li> <li>Discuss proper storage and disposal of materials that may be toxic to bears.</li> <li>Provide a systematic record of bears on the site and in the immediate area.</li> </ol> | <p><b>A-8 Required Operating Procedure</b><br/> <u>Objective:</u> Minimize conflicts resulting from interaction between humans and bears during leasing and associated activities.<br/> <u>Requirement:</u> Oil and gas lessees and their contractors and subcontractors will, as a part of preparation of lease operation planning, prepare and implement bear-interaction plans to minimize conflicts between bears and humans. These plans shall include measures to:</p> <ol style="list-style-type: none"> <li>Minimize attraction of bears to the drill sites.</li> <li>Organize layout of buildings and work areas to minimize human/bear interactions.</li> <li>Warn personnel of bears near or on drill sites and identify proper procedures to be followed.</li> <li>Establish procedures, if authorized, to discourage bears from approaching the drill site.</li> <li>Provide contingencies in the event bears do not leave the site or cannot be discouraged by authorized personnel.</li> <li>Discuss proper storage and disposal of materials that may be toxic to bears.</li> <li>Provide a systematic record of bears on the site and in the immediate area.</li> </ol> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|--|--|--|
| <b>OTHER ACTIVITIES</b>  |  |  |
| <i>Alternative A Stipulation 76 and Alternatives B, C, and D - ROP A-8 would provide equal benefit in minimization of potential impacts to <b>terrestrial mammals</b> (grizzly bears) and <b>marine mammals</b> (polar bears) and to <b>recreation and wilderness</b> users of the area by requiring bear interaction plans that should avoid acclimatization of bears to human contact. The stipulation and ROP would benefit bears by reducing both the number of bears killed in “defense of life and property” and the number of bears becoming habituated to anthropogenic food sources (Moderate).</i> |  |  |
| 77. Operators are encouraged to apply for a letter of authorization from the USFWS to conduct activities in polar bear denning areas.  | <i>C-1b Required Operating Procedure as in No. 24 above.</i>   | <i>C-1b Required Operating Procedure as in No. 24 above.</i>   |
| Effectiveness of <i>Stipulation 77 and C-1b</i> shown in No. 24 above.   |  |  |
| 78. Permanent structures, other than oil and gas facilities, are prohibited within 100 feet of the highest high water mark of the nearest body of water.   |  |  |
| 79. Lessees shall use smokeless flares for handling routine conditions and use auxiliary smokeless flares for planned events that exceed the capacity of routine flares. Lessees shall use flares that meet the Federal New Source Performance design standards listed in 40 CFR 60.18.  | Federal (Clean Air Act) and Alaska State Statute**   | Federal (Clean Air Act) and Alaska State Statute**   |
| <i>Alternative A Stipulation 79 and Federal (40 CFR 60.18) and State(18 AAC 50) regulations should provide equal benefit in minimizing potential impacts to air quality by requiring the use of flares that meet the stated New Source Performance Standards for visible emissions from flares (High).</i>   |  |  |
|  | <b>E-9 Required Operating Procedure</b><br><u>Objective:</u> Avoidance of human-caused increases in populations of predators of ground nesting birds.<br><u>Requirement/Standard:</u> Lessee shall utilize best available technology to prevent facilities from providing nesting, denning, or shelter sites for ravens, raptors, and foxes. The lessee shall provide the AO with an annual report on the use of oil and gas facilities by ravens, raptors and foxes as nesting, denning, and shelter sites. | <b>E-9 Required Operating Procedure</b><br><u>Objective:</u> Avoidance of human-caused increases in populations of predators of ground nesting birds.<br><u>Requirement/Standard:</u> Lessee shall utilize best available technology to prevent facilities from providing nesting, denning, or shelter sites for ravens, raptors, and foxes. The lessee shall provide the AO with an annual report on the use of oil and gas facilities by ravens, raptors and foxes as nesting, denning, and shelter sites. |
| <i>Alternative B, C, and D ROP E-9 should provide the same benefit in minimizing potential impacts to <b>birds, threatened and endangered species, and terrestrial mammals</b>, by requiring lessees to use the best technology to prevent facilities from becoming nesting or shelter sites for predators. Additional shelter or denning sites could result in an increased local predator population and consequent increased predation on other species. (Moderate) Alternative A has no direct counterpart (Low).</i>  |  |  |
|  | <b>E-10 Required Operating Procedure</b><br><u>Objective:</u> Prevention of migrating waterfowl, including species listed under the Endangered Species Act, from striking oil and gas and related facilities during low light conditions.<br><u>Requirement/Standard:</u> Except for safety lighting,  | <b>E-10 Required Operating Procedure</b><br><u>Objective:</u> Prevention of migrating waterfowl, including species listed under the Endangered Species Act, from striking oil and gas and related facilities during low light conditions.<br><u>Requirement/Standard:</u> Except for safety lighting,  |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>OTHER ACTIVITIES</b>   |   |   |
|   | illumination of higher structures shall be designed to direct artificial exterior lighting inward and downward, rather than upward and outward. All drilling structures, production facilities, and other structures that exceed 20 feet in height shall be illuminated as outlined above.  | illumination of higher structures shall be designed to direct artificial exterior lighting inward and downward, rather than upward and outward. All drilling structures, production facilities, and other structures that exceed 20 feet in height shall be illuminated as outlined above.  |
| <i>Alternative B, C, and D ROP E-10</i> should provide the same benefit in minimizing potential impacts to <b>birds and threatened and endangered species, and terrestrial mammals</b> , by requiring lessees to apply lighting to structures in a manner that reduces bird collisions. Directing the lighting inward and downward is thought to reduce the attractiveness to birds and therefore reduce collisions. (Moderate) <i>Alternative A</i> stipulations have no direct counterpart. |   |   |
|   | <p><i>E-11 Required Operating Procedure</i><br/> <u>Objective:</u> Minimize the take of species listed under the Endangered Species Act and minimize the disturbance of other species of interest from direct or indirect interaction with oil and gas facilities.<br/> <u>Requirement/Standard:</u> In accordance with the guidance below, before the approval of facility construction, aerial surveys of breeding pairs of the following species shall be conducted within any area proposed for development.<br/> <u>Special Conditions in Spectacled and/or Steller's Eiders Habitats:</u></p> <ol style="list-style-type: none"> <li>Surveys shall be conducted by the lessee for at least 3 years before authorization of construction, if such construction is within the USFWS North Slope eider survey area and at least 1 year outside that area. Results of aerial surveys and habitat mapping may require additional ground nest surveys. Spectacled and/or Steller's eider surveys shall be conducted following accepted BLM-protocol during the second week of June.</li> <li>If spectacled and/or Steller's eiders are determined to be present within the proposed development area, the applicant shall consult with the USFWS and BLM in the design and placement of roads and facilities in order to minimize impacts to nesting and brood-rearing eiders and their preferred habitats. Such consultation shall address timing restrictions and other temporary mitigating measures,</li> </ol> | <p><i>E-11 Required Operating Procedure</i><br/> <u>Objective:</u> Minimize the take of species listed under the Endangered Species Act and minimize the disturbance of other species of interest from direct or indirect interaction with oil and gas facilities.<br/> <u>Requirement/Standard:</u> In accordance with the guidance below, before the approval of facility construction, aerial surveys of the following species shall be conducted within any area proposed for development.<br/> <u>Special Conditions in Spectacled and/or Steller's Eiders Habitats:</u></p> <ol style="list-style-type: none"> <li>Surveys shall be conducted by the lessee for at least 3 years before authorization of construction, if such construction is within the USFWS North Slope eider survey area and at least 1 year outside that area. Results of aerial surveys and habitat mapping may require additional ground nest surveys. Spectacled and/or Steller's eider surveys shall be conducted following accepted BLM-protocol during the second week of June.</li> <li>If spectacled and/or Steller's eiders are determined to be present within the proposed development area, the applicant shall consult with the USFWS and BLM in the design and placement of roads and facilities in order to minimize impacts to nesting and brood-rearing eiders and their preferred habitats. Such consultation shall address timing restrictions and other temporary mitigating measures,</li> </ol> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C  | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action  |
|---|---|---|
| <b>OTHER ACTIVITIES</b>   |   |   |
|   | <p>construction of permanent facilities, placement of fill, alteration of eider habitat, aircraft operations, and introduction of high noise levels.</p> <p>c. To reduce the possibility of spectacled and/or Steller's eiders striking above ground utility lines (power and communication), such lines shall either be buried in access roads, or suspended on vertical support members, to the extent practical. Support wires associated with communication towers, radio antennas, and other similar facilities, shall be clearly marked along their entire length to improve visibility for low flying birds. Such markings shall be jointly developed through consultation with the USFWS. Overhead power and/or communication lines for oil and gas activities will be limited to the following circumstances.</p> <p><u>Special Conditions in Yellow-billed Loon Habitats:</u></p> <p>a. Aerial surveys shall be conducted by the lessee for at least 3 years before</p> | <p>construction of permanent facilities, placement of fill, alteration of eider habitat, aircraft operations, and introduction of high noise levels.</p> <p>c. To reduce the possibility of spectacled and/or Steller's eiders striking above ground utility lines (power and communication), such lines shall either be buried in access roads, or suspended on vertical support members, to the extent practicable. Support wires associated with communication towers, radio antennas, and other similar facilities, shall be clearly marked along their entire length to improve visibility for low flying birds. Such markings shall be jointly developed through consultation with the USFWS.</p> <ol style="list-style-type: none"> <li>1. Overhead power or communication lines may be allowed when located entirely within the boundaries of a facility pad;</li> <li>2. Overhead power or communication lines may be allowed when engineering constraints at the specific location make it unfeasible to bury or connect them to a vertical support member, or</li> <li>3. Overhead power or communication lines may be allowed when human safety would be compromised by other methods. (Note: This requirement standard would be Planning Area wide.)</li> </ol> <p><u>Special Conditions in Yellow-billed Loon Habitats:</u></p> <p>a. Aerial surveys shall be conducted by the lessee for at least 3 years before</p> |

Table 2-2. Continued.

| 1998 Northeast IAP/EIS Stipulations for the No Action Alternative   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for Alternative B and Alternative C   | Comparable/Applicable Amended IAP/EIS Lease Stipulations and Required Operating Procedures for the Proposed Action   |
|---|--|--|
| <b>OTHER ACTIVITIES</b>   |  |  |
|   | <p>authorization of construction of facilities proposed for development which are within 1 mile of a lake 25 acres or larger in size. These surveys along shorelines of large lakes shall be conducted following accepted BLM protocol during nesting in late June and during brood rearing in late August.</p> <p>b. Should yellow-billed loons be present, the design and location of facilities must be such that disturbance is minimized. Accepted mitigation is a 1-mile buffer around all recorded nest sites and a minimum 1,625-foot (500-meter) buffer around the remainder of the lake shoreline. Development may be prohibited within buffers or activities curtailed while birds are present.</p> | <p>authorization of construction of facilities proposed for development which are within 1 mile of a lake 25 acres or larger in size. These surveys along shorelines of large lakes shall be conducted following accepted BLM protocol during nesting in late June and during brood rearing in late August.</p> <p>b. Should yellow-billed loons be present, the design and location of facilities must be such that disturbance is minimized. Accepted mitigation is a 1-mile buffer around all recorded nest sites and a minimum 1,625-foot (500-meter) buffer around the remainder of the lake shoreline. Development may be prohibited within buffers or activities curtailed while birds are present.</p> |
| <p><i>Alternative D ROP E-11</i> provides greater benefit than <i>Alternatives B and C</i> in minimizing potential impacts to <b>birds</b> and <b>threatened and endangered species</b> by requiring lessees to conduct studies of eiders and loons to ensure that facility siting minimizes impacts to birds and by improving the visibility of towers, power lines, and guy wires in a manner that reduces bird collisions. (Moderate) <i>Alternative A</i> stipulations have no direct counterpart.</p>  |  |  |
| <p>* The performance based stipulations and required operating procedures would offer greater flexibility to adapt requirements/standards to specific situations and to modify the requirements/standards if they prove ineffective. Prescriptive based mitigation often attempts to define a requirement with a “one size fits all” approach that does not allow adjustments when site and project-specific information. Accordingly, while we have in some cases found a performance-based stipulation or ROP to be less effective than the corresponding prescriptive stipulation in <i>Alternative A</i>, this lesser effectiveness may be compensated for by the additional flexibility in the performance based ROPs.</p> <p>**Existing laws and regulations that extend across all lands in Alaska and fall under the jurisdiction of the State of Alaska and other federal agencies. However, if BLM personnel observation that any of these statutes, laws, or regulations are being violated, the violations will be reported and proper actions will be taken to arrest the situation.</p> <p>**Existing laws and regulations that extend across all lands in Alaska and fall under the jurisdiction of the State of Alaska and other federal agencies. However, if BLM personnel observation that any of these statutes, laws, or regulations are being violated, the violations will be reported and proper actions will be taken to arrest the situation.</p> |  |  |



**Table 2-3. Summary and Comparison of Effects on Resources by Alternative.**

| No Action Alternative   | Alternative B  | Alternative C  | Final Preferred Alternative  |
|---|--|--|--|
| <b>EFFECTS ON AIR QUALITY</b>   |  |  |  |
| <b>General Effects:</b> Exploration, development, and production activities would cause small, local, temporary increases in the concentrations of criteria pollutants. Concentrations would be within the Prevention of Significant Deterioration (PSD) Class II limits and National Ambient Air Quality Standards (NAAQS). Therefore, effects would be minor.   | <b>General Effects:</b> Concentrations of emissions could be up to 3 times higher than under the No Action Alternative, based on number of facilities developed, but would still be within the PSD Class II limits and NAAQS. Therefore, effects would be minor.   | <b>General Effects:</b> Concentrations of emissions could be slightly higher than under Alternative B, and up to 4 times higher than under the No Action Alternative, based on number of facilities developed, but would still be within the PSD Class II limits and NAAQS. Therefore, effects would be minor.   | <b>General Effects:</b> Concentrations of emissions would be slightly lower than Alternative B, but 2 times higher than under the No Action Alternative based on number of facilities developed, but would still be within the PSD Class II limits and NAAQS. Therefore, effects would be minor.   |
| <b>Cumulative Effects:</b> The cumulative effects of all projects affecting the air quality of the North Slope of Alaska now and in the past have caused generally little deterioration in air quality, which remains better than required by national standards. Because oil production levels are predicted to be 30% lower under the reasonably foreseeable future development scenario than levels reached in the late 1980s, air emissions under this scenario are predicted to be at least 30% lower than air emissions in the late 1980s. Emissions from development resulting from the final Preferred Alternative and other alternatives would be small compared to the emissions from Prudhoe Bay and Kuparuk oil field production; projected emissions from the alternatives would account for only a small percentage of current and projected emissions. Assuming that air pollutants generated are proportional to oil production levels, the Planning Area would contribute approximately 6% (No Action Alternative) to 16% (Alternative C) of the projected total output of air emissions on the North Slope, assuming an oil price of \$25 per bbl; the final Preferred Alternative and Alternative B would be intermediate to these levels. Use of newer air emissions control technology should help to lower emissions from historic levels. Arctic haze will continue to be of concern on the North Slope, but studies suggest that air emissions in Europe and Asia, and not on the North Slope, are the primary contributors to this haze.   |  |  |  |
| <b>EFFECTS ON PALEONTOLOGICAL RESOURCES</b>   |  |  |  |
| <b>General Effects:</b> Impacts from non-oil and gas activities would be minimal. Surface disturbance to 130 (at \$20/bbl oil) to 510 (at \$30/bbl oil) acres could impact paleontological resources. There is a very low risk that paleontological resources would be encountered and impacted during extraction of materials, surface disturbance, or oil spills associated with oil and gas development. Potential impacts would be minor.   | <b>General Effects:</b> Surface disturbance to 140 (\$20/bbl oil) to 1,570 (\$30/bbl oil) (1,120; \$25/bbl oil) acres could impact paleontological resources. The risk that paleontological resources would be encountered and impacted would be slightly higher than under the No Action Alternative, but potential impacts would still be minor. Gravel mining near rivers and lakes poses the greatest threat to paleontological resources. | <b>General Effects:</b> Surface disturbance to 190 to 1,975 (1,380) acres could impact paleontological resources. The risk that paleontological resources would be encountered and impacted would be slightly higher than under Alternative B, and nearly 4 times the level under the No Action Alternative, but potential impacts would still be minor. Gravel mining near rivers and lakes poses the greatest threat to paleontological resources. | <b>General Effects:</b> Surface disturbance to 130 to 1,300 (920) acres could impact paleontological resources. The risk that paleontological resources would be encountered and impacted would be 50% less than under Alternative C, but about twice as great as under the No Action Alternative; potential impacts would still be minor. Gravel mining near rivers and lakes poses the greatest threat to paleontological resources. |
| <b>Cumulative Effects:</b> Paleontological research and excavation, past non-oil and gas development, recreation, and oil and gas exploration and development have contributed to the loss of paleontological resources, either from removal or destruction. If paleontological resources removed in the past have been preserved in museum or private collections, their losses would not accumulate. If they have been lost forever, the impacts of this lost resource persist today. Approximately 2,500 acres on the North Slope have been disturbed or covered with gravel for non-oil and gas development. Approximately 1,750 acres have been disturbed from bladed and peat roads, exploration sites, and airstrips. Gravel mining has disturbed over 6,300 acres, much of this area along rivers where paleontological resources are often exposed or are close to the surface. Another 9,200 acres have been covered with gravel to create pads and roads. Paleontological resources found in these areas could be damaged, destroyed, or buried under gravel. Recent technological developments, including use of ice roads and pads, Rolligons, horizontal drilling, and roadless development have reduced the amount of surface disturbance associated with exploration and development activities, with likely benefits to near-surface paleontological resources. Non-oil and gas, and oil and gas, development over the next 25 years could result in disturbance to the Planning Area and North Slope over an estimated 500 and 4,000 acres, respectively. An additional 4,000 acres could be impacted by 2050 if development occurs in the Northwest and South National Petroleum – Reserve. The North Slope region is approximately 57 million acres, while the Arctic Coastal Plain (ACP), where most oil and gas development |  |  |  |

Table 2-3. Continued.

| No Action Alternative   | Alternative B   | Alternative C   | Final Preferred Alternative  |
|---|---|---|--|
| <b>EFFECTS ON PALEONTOLOGICAL RESOURCES</b>   |   |   |  |
| would take place, comprises 13 million of those acres. Surface disturbance associated with all past and reasonably foreseeable non-oil and gas, and oil and gas development would impact approximately 0.05 percent of the Alaska North Slope and 0.2 percent of the ACP. Of this, gravel mining would account for about 500 acres in the next 25 years. These actions have the potential to add to the cumulative loss of paleontological resources. Site reclamation would not reduce this loss, as paleontological resources would have already been lost during site disturbance and development. As seismic surveys are completed in the Planning Area and the remainder of the North Slope, the level of seismic activity and potential for impacts to paleontological resources would decline. An estimated 300 (No Action Alternative) to 1,400 (Alternative C) (920; final Preferred Alternative) acres could be disturbed from oil and gas development in the Planning Area during the next 25 years. The amount of area disturbed by the alternatives would comprise 0.002% to 0.011% (0.007%) of the ACP, and 0.0005% to 0.0024% (0.0016%) of the North Slope. Stipulations and ROPs developed for the alternatives would minimize or prohibit exploration and development activities near major rivers, further reducing the likelihood of impacts to paleontological resources. |   |   |  |
| <b>EFFECTS ON SOIL RESOURCES</b>  |   |   |  |
| <b>General Effects:</b> During exploration, construction of ice pads would cause localized areas of soil compaction and loss of surrounding vegetation; these impacts would occur on 60 to 230 acres over the life of the project, and would be negligible to minor. Another 210 acres would be impacted annually by ice roads. Seismic surveys would cause short-term impacts to soil; 6,600 acres would be impacted by 2-D surveys, and approximately 98,880 to 197,760 acres would be impacted by 3-D surveys during a 25-year period; long-term impacts would occur on about 150 acres. Placement of gravel fill could cover soil on 100 to 415 acres, and alter the physical qualities of soil on 200 to 600 acres. At gravel mine sites, soil productivity would be reduced on 20 to 90 acres. Construction of pipelines would disturb approximately 2 acres per mile for aboveground pipelines, and 1.5 acres per mile of underground pipeline. Provided oil spills were cleaned up immediately, there would be minimal contamination of soils. Given the small portion of the Planning Area affected, impacts to soils would be minor.  | <b>General Effects:</b> A larger acreage of soil would likely be disturbed than under the No Action Alternative, and the risk of an oil spill would be higher. During exploration, construction of ice pads would cause localized areas of soil compaction and loss of surrounding vegetation; these impacts would occur on 60 to 600 (450) acres over the life of the project, and would be negligible to minor. Another 210 acres would be impacted annually by ice roads. Seismic surveys would cause short-term impacts to soil; 6,600 acres would be impacted by 2-D surveys, and approximately 98,880 to 247,200 acres would be impacted by 3-D surveys during a 25-year period; long-term impacts would occur on about 200 acres. A greater proportion of impacts could be to soils near Teshekpuk Lake. Placement of gravel fill would cause loss of soil productivity on 110 to 1,340 (950) acres, and alter the physical qualities of soil on 400 to 2,800 (2,000) acres. At gravel mine sites, soil productivity would be reduced on 30 to 230 (170) acres. Although a larger acreage would be impacted than under the No Action Alternative, the portion of the Planning Area affected would be very small, and overall long-term impacts to soils would still be minor (less than 1 percent of the | <b>General Effects:</b> A larger acreage of soil would likely be disturbed than under the other alternatives, and the risk of an oil spill would be higher. During exploration, construction of ice pads would cause localized areas of soil compaction and loss of surrounding vegetation; these impacts would occur on 72 to 730 (565) acres over the life of the project, and would be negligible to minor. Another 210 acres would be impacted annually by ice roads. Seismic surveys would cause short-term impacts to soil; 6,600 acres would be impacted by 2-D surveys, and approximately 98,880 to 247,200 acres would be impacted by 3-D surveys during a 25-year period; long-term impacts would occur on about 200 acres. The acreage of soil affected by seismic surveys would be greater than the acreage affected under the No Action Alternative and Alternative B. Placement of gravel fill would cause loss of soil productivity on 160 to 1,675 (1,170) acres, and alter the physical qualities of soil on 400 to 3,400 (2,400) acres. At gravel mine sites, soil productivity would be reduced on 30 to 300 (210) acres. The acreage of soil impacted would be slightly greater than under Alternative B. Since the portion of the Planning Area affected would be very small, overall impacts to soils would still | <b>General Effects:</b> A smaller acreage of soil would likely be disturbed than under alternatives B and C, and the risk of an oil spill would be lower. During exploration, construction of ice pads would cause localized areas of soil compaction and loss of surrounding vegetation; these impacts would occur on 60 to 500 (360) acres over the life of the project, and would be negligible to minor. Another 210 acres would be impacted annually by ice roads. Seismic surveys would cause short-term impacts to soil; 6,600 acres would be impacted by 2-D surveys, and approximately 98,880 to 247,200 acres would be impacted by 3-D surveys during a 25-year period; long-term impacts would occur on about 200 acres. The acreage of soil affected by seismic surveys would be greater than the acreage affected under the No Action Alternative, but less than the acreage affected under alternatives B and C. Placement of gravel fill would cause loss of soil productivity on 110 to 1,090 (780) acres, and alter the physical qualities of soil on 200 to 2,400 (1,600) acres. At gravel mine sites, soil productivity would be reduced on 20 to 210 (140) acres. The acreage of soil impacted would be 3 times as great as the amount of soil impacted under the No Action Alternative, but 30% less than |

Table 2-3. Continued.

| No Action Alternative  | Alternative B   | Alternative C  | Final Preferred Alternative   |
|--|---|--|---|
| <b>EFFECTS ON SOIL RESOURCES</b>   |   |  |   |
|  | Planning Area).   | be minor.  | under Alternative C and 20% less than under Alternative B. Since the portion of the Planning Area affected would be very small, overall impacts to soils would still be minor.  |
| <p><b>Cumulative Effects:</b> Based on the above analysis, approximately 2,500 acres of direct impacts to soil from non-oil and gas activities persist today. Oil and gas activities have caused approximately 12,000 acres of direct impacts to soil that persist today. Since most of these impacts are associated with ongoing non-oil and gas residential and commercial development, and oil and gas activities, these impacts to soil are additive to future impacts and are likely to persist for several decades or more. However, the rate at which soil is disturbed by development has slowed substantially in recent years due to advances in technology and a slowing of oil field development on the North Slope. An estimated 4,000 acres could be disturbed from oil and gas development on the North Slope during the next 25 years. An additional 4,000 acres could be impacted by 2050 if development occurs in the Northwest and South National Petroleum – Reserve. Offshore development associated with leases in the Beaufort Sea could impact small areas along the coast for staging and storage of materials, but is unlikely to impact large areas of soil. These impacts are additive to the impacts to soil that have accumulated in the past and persist today, but in the context of the ACP and North Slope, these cumulative impacts would be small. Surface disturbance associated with all past and reasonably foreseeable non-oil and gas, and oil and gas, development could impact approximately 0.17% of the Alaska North Slope and 0.04% of the ACP. Of this, gravel mining would account for about 500 acres in the next 25 years. These actions have the potential to add to the cumulative loss of soil resources. If oil prices average \$25 per bbl, development in the Planning Area would directly impact 300, 1,120, 1,380, and 920 acres of soil for alternatives A through D, respectively, and indirectly impact 400 to 2,400 acres of soil (1,600 acres under the final Preferred Alternative). Impacts associated with the Planning Area would be additive to past, present, and reasonably foreseeable future soil impacts on the North Slope. Global climate change could result in effects to soil from non-oil and gas development, and oil and gas exploration and development, on the North Slope that are much greater than predicted.</p> |   |  |   |
| <b>EFFECTS ON WATER RESOURCES</b>  |   |  |   |
| <p><b>General Effects:</b> Non-oil and gas activities would have a minimal impact on water resources. Exploration and development would entail water withdrawal from lakes for drilling and construction of ice roads and pads; erosion and sedimentation; temporary impoundments and diversions; and removal of gravel from areas near streams and lakes. Stipulations addressing these activities would ensure that impacts would be negligible.</p>   | <p><b>General Effects:</b> Impacts to water resources would occur over a larger acreage, and more lakes could potentially be impacted by water withdrawal, than under the No Action Alternative. This alternative would allow drilling on and near Teshekpuk Lake, increasing the likelihood that water resources in this lake would be negatively impacted by an oil spill. Stipulations and ROPs would keep impacts to water resources minimal.</p> | <p><b>General Effects:</b> Impacts to water resources would occur over a larger acreage, and more lakes could potentially be impacted by water withdrawal, than under the other alternatives. This alternative would allow drilling on and near Teshekpuk Lake, and in the area to the northeast, increasing the likelihood that water resources in deepwater lakes in this area would be impacted by an oil spill. Stipulations and ROPs would keep impacts to water resources minimal.</p> | <p><b>General Effects:</b> Impacts to water resources would occur over a smaller acreage, and fewer lakes could potentially be impacted by water withdrawal, than under alternatives B and C. This alternative would defer leasing of Teshekpuk Lake, and would restrict permanent facilities in Lease Tracts associated with the Goose Molting Area, an area with lakes that are important to molting geese. This would reduce the likelihood of a spill from a production facility impacting lakes in this region. However, pipelines would be allowed in this area, so a spill from a pipeline could affect water bodies. Stipulations and ROPs would keep impacts to water resources minimal.</p> |
| <p><b>Cumulative Effects:</b> See cumulative effects under water quality.</p>  |   |  |   |

Table 2-3. Continued.

| No Action Alternative   | Alternative B  | Alternative C   | Final Preferred Alternative  |
|---|--|---|--|
| <b>EFFECTS ON WATER QUALITY</b>   |  |   |  |
| <p><b>General Effects:</b> Seismic surveys would cause persistent high-level damage to vegetation, which would affect water quality through thermokarst erosion. There would be long-term impacts to water quality on approximately 16 acres as a result of seismic activities. During each year of exploration, construction of ice pads and ice roads would temporarily alter water quality. Development activities would impact water quality on 130 to 510 acres. Construction and placement of gravel structures would result in increased turbidity and upslope water impoundment on 200 to 600 acres. Oil spills could have short-term effects on water quality in lakes and other large water bodies, but could have lasting toxicity effects in smaller ponds.</p>   | <p><b>General Effects:</b> Water quality would be impacted over a larger portion of the Planning Area than under the No Action Alternative. Short-term impacts during construction would include increased water impoundments, thermokarst erosion, diversions, and sedimentation. There would be long-term impacts to water quality on approximately 26 acres as a result of seismic activities. Development would impact water quality on 140 to 1,510 (1,120) acres. Construction and placement of gravel structures would result in increased turbidity and upslope water impoundment on 400 to 2,800 (2,000) acres. The potential for impacts to surface water quality would be greater than under the No Action Alternative. Because drilling would be allowed on and near Teshekpuk Lake, the potential for contamination of the lake by an oil spill would also be greater than under the No Action Alternative.</p> | <p><b>General Effects:</b> Water quality would be impacted over a larger portion of the Planning Area than under the other alternatives. There would be impacts to water quality on approximately 26 acres as a result of seismic activities. Development activities would impact water quality on 190 to 1,975 (1,380) acres. Construction and placement of gravel structures would result in increased turbidity and upslope water impoundment on 400 to 3,400 (2,400) acres. The potential for impacts to surface water quality would be greater than under the other alternatives. Because more drilling in environmentally sensitive areas would occur, the likelihood of impacts to surface water quality from oil spills would be greater than under the other alternatives.</p> | <p><b>General Effects:</b> Water quality would be impacted over a smaller portion of the Planning Area than under alternatives B and C. Short-term impacts during construction would include increased water impoundments, thermokarst erosion, diversions, and sedimentation. There would be long-term impacts to water quality on approximately 26 acres as a result of seismic activities. Development would impact water quality on 130 to 1,300 (920) acres. Construction and placement of gravel structures would result in increased turbidity and upslope water impoundment on 200 to 2,400 (1,600) acres. The potential for impacts to surface water quality would be greater than under the No Action Alternative. Because leasing would be deferred in Teshekpuk Lake, contamination of the lake by an oil spill would be unlikely and similar to the risk of a spill impacting the lake under the No Action Alternative.</p> |
| <p><b>Cumulative Effects:</b> Based on the above analysis, approximately 2,500 acres of direct surface disturbance have impacted water bodies and drainage patterns. Oil and gas activities have caused approximately 12,000 acres of direct impacts to lands on the North Slope, much of which consist of water bodies; indirectly impacted water bodies and flows on another 18,000 acres. Since most of these impacts are associated with ongoing non-oil and gas residential and commercial development, and oil and gas activities, these impacts to water are additive to future impacts and would be likely to persist for several decades or more. Several spills have occurred on the North Slope, but their effects have been minor and have likely not accumulated. Effects of discharges from offshore facilities and subsurface injection of drilling wastes are largely unknown, but likely have had little cumulative effect on water quality on the North Slope. Large amounts of debris was left on the North Slope from exploration and military activities from 1940 to 1970 that impacted water quality, but clean-up efforts since the 1970s have removed much of this debris. Assuming cumulative effects to water resources would occur in relation to the amount of surface disturbance across the North Slope, direct and indirect cumulative effects could occur on approximately 0.08 percent of the North Slope and 0.33 percent of the ACP. Of this, gravel mining would account for about 500 acres in the next 25 years. The majority of the impacts would result from oil and gas development activities, with construction of roads, permanent drill pads, and water use from lakes during the winter months being the major contributors. Impacts from activities other than those associated with oil and gas development (including any oil and gas-related roads) would be minor. Because of the abundance of water resources on the North Slope, the overall cumulative impact to water resources on the North Slope and in the Planning Area would probably be small in magnitude and most impacts would be local in nature. Global warming will lead to increased evaporation and in turn to increased precipitation (this is already occurring). Over the Arctic as a whole, annual total precipitation is projected to increase by roughly 20 percent by the end of this century, with most of the increase coming as rain. However, while there is high confidence that temperatures will rise and total annual precipitation will increase, it is not known whether the increase in precipitation will keep up with the warming and rate of evaporation. If precipitation does not keep up with the rate of evaporation, land areas could dry out. Another concern is the degree of permafrost thawing and subsequent drainage of water from the land. For example, summer thawing now results in a large amount of water on the surface. However, this moisture could be lost if the depth of the active layers increases. This could result in desertification in some areas as warming continues (ACIA 2004). Direct impacts</p> |  |   |  |

Table 2-3. Continued.

| No Action Alternative  | Alternative B   | Alternative C  | Final Preferred Alternative   |
|--|---|--|---|
| <b>EFFECTS ON WATER QUALITY</b>  |   |  |   |
| <p>to water quality from surface disturbance activities on the Planning Area would occur on approximately 250 (No Action Alternative) to 1,500 (Alternative C) acres (assuming an oil price of 25 per bbl), and indirect impacts would occur on 400 to 2,400 acres. Direct impacts associated with the past, present, and reasonably foreseeable developments could impact an additional 30,000 acres. Thus, direct impacts to water quality would occur on less than 0.2 percent of the ACP, and 0.04 percent of the North Slope from past, present, and reasonably foreseeable future activities. Indirect impacts to water quality could occur on approximately twice as much land as direct impacts. Approximately 600,000 acres in the TLSA would be closed to leasing under Alternative A. Wetland habitat comprises approximately 95 percent of this area. Thus, protection to water bodies would be greatest under Alternative A. Approximately 213,000 acres in the TLSA are closed to leasing under Alternative B, while Teshekpuk Lake (211,000 acres) is deferred from leasing under the final Preferred Alternative. Based on amount of surface area protected, water bodies would be nearly equally protected under these two alternatives. However, approximately 20 percent more development is projected to occur under Alternative B than the final Preferred Alternative, increasing the likelihood of impacts to aquatic bodies from construction of roads and pads, gravel mining, and other development and production activities under Alternative B. Under Alternative C, the entire Planning Area would be open to leasing. The amount of area disturbed from oil and gas activities is projected to be highest for this alternative. Thus, Alternative C would provide less protection to water resources than the other alternatives. The stipulations and ROPs provided for each alternative should reduce impacts from oil and gas exploration and development and keep impacts to water resources to a minor to moderate level. Still, future impacts to water resources would occur and would accumulate with past impacts.</p> |   |  |   |
| <b>EFFECTS ON VEGETATION</b>   |   |  |   |
| <p><b>General Effects:</b> Non-oil and gas activities would have negligible effects on vegetation. Oil exploration would disturb vegetation on 6,600 acres from 2-D seismic work and approximately 98,880 to 197,760 acres from 3-D surveys. About 25 percent of the disturbance from 2-D would be medium to high short-term impacts, with a greater percentage at that level for 3-D; there would be long-term impacts on about 150 acres. Construction of ice pads would occur on 30 to 115 acres during the life of the project. Another 210 acres could be impacted annually by construction of ice roads. The construction of exploration well collars would result in permanent, minor vegetation destruction and alteration. Development activities would cause the loss of vegetation on 130 to 505 acres and the alteration of plant species composition on 235 to 710 acres, affecting a total of 365 to 1,215 acres. These impacts would be permanent if gravel pads remained after production ended, although some plant species would be able to grow on the pads. Development impacts would affect less than 0.03% of the total Planning</p>   | <p><b>General Effects:</b> Impacts from seismic surveys would be slightly higher than under the No Action Alternative. Oil exploration would disturb vegetation on 6,600 acres from 2-D seismic work and 98,880 to 247,200 acres from 3-D surveys; there would be long-term impacts on about 200 acres. Construction of ice pads would occur on 30 to 300 (255) acres during the life of the project. Another 210 acres could be impacted annually by construction of ice roads. Development activities would cause the loss of vegetation on 140 to 1,570 (1,120) acres and the alteration of plant species composition on 470 to 3,300 (2,360) acres, affecting a total of 615 to 4,875 (3,480) acres. These impacts would be permanent if gravel pads remained after production ended, although some plant species would be able to grow on the pads. Development impacts would affect less than 0.08% of the Planning Area and would not likely adversely affect any plant species or plant communities. Overall, a greater amount of vegetation would be impacted than under the No Action Alternative, but impacts would still be</p> | <p><b>General Effects:</b> Impacts from seismic surveys would be higher than under other alternatives. Oil exploration would disturb vegetation on 6,600 acres from 2-D seismic work and 98,880 to 247,200 acres from 3-D surveys; there would be long-term impacts on about 200 acres. Construction of ice pads would occur on 30 to 366 (270) acres. Construction of ice roads and ice pads would impact vegetation on 240 to 580 (480) acres per year. Development activities would cause the loss of vegetation on 190 to 1,975 (1,380) acres and the alteration of plant species composition on 470 to 4,010 (2,830) acres, affecting a total of 660 to 5,985 (4,215) acres. These impacts would be permanent if gravel pads remained after production ended, although some plant species would be able to grow on the pads. Development impacts would affect less than 0.1% of the total Planning Area and would not likely adversely affect any plant species or plant communities. Overall, a greater amount of vegetation would be impacted than under the other alternatives, but impacts would still be minor, provided</p> | <p><b>General Effects:</b> Impacts from seismic surveys would be lower than under alternatives B and C. Oil exploration would disturb vegetation on 6,600 acres from 2-D seismic work and 98,880 to 247,200 acres from 3-D surveys; there would be long-term impacts on about 200 acres. Construction of ice pads would occur on 30 to 250 (180) acres. Construction of ice roads and ice pads would impact vegetation on 240 to 460 (390) acres per year. Development activities would cause the loss of vegetation on 130 to 1,300 (920) acres and the alteration of plant species composition on 235 to 2,830 (1,890) acres, affecting a total of 365 to 4,130 (2,810) acres. These impacts would be permanent if gravel pads remained after production ended, although some plant species would be able to grow on the pads. Impacts under the final Preferred Alternative would be 33% and 20% less than would occur under alternatives C and B, respectively, but about 3 times greater than would occur under the No Action Alternative. Development impacts would affect less</p> |

Table 2-3. Continued.

| No Action Alternative  | Alternative B  | Alternative C   | Final Preferred Alternative   |
|--|--|---|---|
| <b>EFFECTS ON VEGETATION</b>   |  |   |   |
| Area and would not likely adversely affect any plant species or plant communities. Overall, impacts would be minor, provided rare plant populations were avoided through careful siting at the facilities-approval stage.  | minor, provided rare plant populations were avoided through careful siting at the facilities-approval stage.   | rare plant populations were avoided through careful siting at the facilities-approval stage. Increased development in the area around Teshekpuk Lake could disproportionately affect wet vegetation classes.  | than 0.1% of the total Planning Area and would not likely adversely affect any plant species or plant communities. Overall, a greater amount of vegetation would be impacted than under the No Action Alternative, but less than under the other action alternatives. Impacts would be minor, provided rare plant populations were avoided through careful siting at the facilities-approval stage. Increased development in the area around Teshekpuk Lake could disproportionately affect wet vegetation classes. |
| <p><b>Cumulative Effects:</b> Approximately 2,500 acres of direct impacts and 5,000 acres of indirect impacts to vegetation from non-oil and gas activities persist today; oil and gas activities have caused approximately 12,000 acres of direct impacts and 21,000 acres of indirect impacts to vegetation that persist today. Since most of these impacts are associated with non-oil and gas residential and commercial development, and oil and gas activities, these impacts to vegetation are additive to future impacts and would be likely to persist for several decades or more. Although the increase in the amount of area disturbed by oil and gas development has slowed dramatically in recent years, it is estimated that an additional 3,500 acres could be covered by gravel and 500 acres impacted by gravel mines in the next 25 years, much of this in the Planning Area. Approximately 9,200 acres would be indirectly affected by dust, changes in hydrology, and thermokarst. An additional 4,000 acres of vegetation could be impacted by oil and gas activities between 2030 and 2055; another 9,200 acres could be indirectly impacted by development. These impacts are additive to the impacts to vegetation that have accumulated in the past and persist today, but in the context of the ACP and North Slope, these cumulative impacts would be small. Based on direct (22,000 acres) and indirect (44,000 acres) impacts that could still persist in 2050, direct and indirect impacts to vegetation from activities on the North Slope would impact approximately 0.43 percent of the ACP and 0.10 percent of the North Slope. These estimates do not take into account the quality of the vegetation that would be impacted on the North Slope. If facilities were constructed in an area containing a population of a rare plant species, the impacts to that species could be high. Three rare North Slope plant species are known to occur in the Planning Area, and four other rare species are known to occur on the North Slope but have not been documented in the Planning Area. Because of the limited number of plants comprising rare plant populations on the North Slope, loss of one or more plant populations could be a significant cumulative impact to the species. Long-term impacts to vegetation from seismic surveys in the Planning Area would occur on approximately 140 (Alternative A) to 190 (alternatives B, C, and D) acres. Impacts from ice road construction would occur on another 210 acres annually, while impacts from ice pads would occur on 30 to 270 acres during the life of the project; these impacts to vegetation would be short-term and would not accumulate. If oil prices average \$25 per bbl, development in the Planning Area would directly impact approximately 300, 1,120, 1,380, and 920 acres, and indirectly impact 450, 2,360, 2,730, and 1,890 acres of vegetation for Alternatives A through D, respectively. These impacts would be long-term and would accumulate. Total direct and indirect impacts to vegetation would occur on 0.02 (No Action Alternative) to 0.09 (Alternative C) percent of the Planning Area. Global climate change could alter the species composition, increasing deciduous shrubs and decreasing sedges and grasses.</p> |  |   |   |
| <b>EFFECTS ON WETLANDS AND FLOODPLAINS</b>   |  |   |   |
| Oil and gas development could cause loss of or disturbance to 310 to 1,050 acres of wetland soil. There would be long-term impacts to water quality in wetlands from exploration (28 acres) and development (310 to 1,050 acres). Seismic activities would result in 140 acres of long-term impacts to wetland vegetation. Ice roads and pads would impact up to 315 acres of  | Oil and gas development could cause loss of or disturbance to 510 to 4,150 (2,965) acres of wetland soil. There would be long-term impacts to water quality from exploration (25 acres) and development (510 to 4,150 [2,965] acres). Seismic activities would result in 190 acres of long-term impacts to wetland vegetation. Ice roads and pads would impact 410 acres | Oil and gas development could cause loss of or disturbance to 560 to 5,105 (3,590) acres of wetland soil. There would be long-term impacts to water quality in wetlands from exploration (25 acres) and development (560 to 5,105 [3,590] acres). Seismic activities would result in 190 acres of long-term impacts to wetland vegetation. Ice roads and pads would | Oil and gas development could cause loss of or disturbance to 315 to 3,510 (2,395) acres of wetland soil. There would be long-term impacts to water quality in wetlands from exploration (25 acres) and development (315 to 3,510 [2,395] acres). Seismic activities would result in 190 acres of long-term impacts to wetland vegetation. Ice roads and pads would   |

Table 2-3. Continued.

| No Action Alternative   | Alternative B  | Alternative C  | Final Preferred Alternative  |
|---|--|--|--|
| <b>EFFECTS ON WETLANDS AND FLOODPLAINS</b>  |  |  |  |
| wetland vegetation. Development activities could impact an additional 330 to 1,070 acres of wetland vegetation.   | of wetland vegetation. Development activities could impact an additional 585 to 4,635 (3,310) acres of wetland vegetation. This would be about 4 times the level of impacts for the No Action Alternative.   | impact 235 to 550 (460) acres of wetland vegetation. Development activities could impact an additional 630 to 5,685 (4,005) acres of wetland vegetation. This would be about 6 times the level of impacts for the No Action Alternative, and about 17% greater than for Alternative B.   | impact 230 to 435 (370) acres of wetland vegetation. Development activities could impact an additional 350 to 3,920 (2,670) acres of wetland vegetation. This would be about 4 times the level of impacts for the No Action Alternative, but about 24% and 50% less than for Alternative B and C, respectively.  |
| <b>Cumulative Effects:</b> Approximately 95 percent of the ACP in the Planning Area consists of wetlands. The ACP is also the area where the most significant oil and gas discoveries have occurred and where future major discoveries are most likely. In addition, most non-oil and gas development associated with villages and military facilities occurs within this area. Thus, wetlands have been affected by past activities, and will be susceptible to effects from future development, especially spills. New technologies, including use of low-impact equipment and less reliance on gravel roads and pads have reduced the potential for impacts to wetlands. However, other technologies, including use of ice roads and pads, may have effects on wetlands that are not well understood, but could be substantial in the long-term. Cumulative effects from human-induced activities on the North Slope, coupled with the potential cumulative effects of global climate change, could result in substantial alteration of North Slope wetland soil, water, and vegetation in the future. All of the Northeast National Petroleum Reserve – Alaska would be open to oil and gas leasing under Alternative C. Land unavailable for leasing and surface activity under the No Action Alternative, Alternative B, and the final Preferred Alternative would prevent development in areas that are predominately wetlands. The Goose Molting Area, in particular, contains a large percentage of the wetland vegetation types preferred by waterfowl, including aquatic vegetation dominated by water sedge and pendent grass. Under Alternative C, these areas would be more likely to be developed, and these vegetation classes would likely be impacted to a greater extent, than under any of the other alternatives. Under Alternative C, actions would contribute to cumulative wetland loss on the North Slope to a greater extent. Alternative B would contribute more to wetland loss than would the final Preferred Alternative. Assuming that 95 percent of the disturbance area would be to wetlands, approximately 760, 3,300, 4,000, and 2,670 acres of wetland soil, water, and vegetation resources would be directly and indirectly impacted by alternatives A through D, respectively. Total direct and indirect impacts to wetlands would occur on 0.02 (No Action Alternative) to 0.09 (Alternative C) percent of the Planning Area, and would comprise from 0.001 to 0.007 percent of the area impacted on the North Slope. |  |  |  |
| <b>EFFECTS ON FISH</b>  |  |  |  |
| <b>General Effects:</b> A small number of individual fish could be killed, but it is unlikely that there would be a measurable effect on Arctic fish populations. Increased mortality would be anticipated if water withdrawals occurred in river pools, though it is unlikely that the entire population within a river system would be eliminated. Gravel extractions could lead to habitat enhancement in certain situations. Stipulations would limit winter activities, protect over wintering habitats, and offer other protections to fish. Overall, effects should be minor.  | <b>General Effects:</b> Fish in Teshekpuk Lake and other deepwater lakes and streams in the area would have a greater potential to be impacted by spills and habitat degradation than under the No Action Alternative. However, these stipulations and ROPs would limit winter activities, protect over-wintering habitats, and offer other protections to fish. Overall, effects should be minor. | <b>General Effects:</b> Fish in Teshekpuk Lake and other deepwater lakes and streams in the area would have a greater potential to be impacted by spills and habitat degradation than under the other alternatives. Stipulations and ROPs would limit winter activities, protect over-wintering habitats, and offer other protections to fish. Overall, effects should be minor. | <b>General Effects:</b> Fish in deepwater lakes and streams in the area would have a greater potential to be impacted by spills and habitat degradation than under the No Action Alternative, but less potential than under alternatives B and C. Additional protection would be provided by deferring leasing in Teshekpuk Lake, and restricting permanent surface occupancy and amount of surface disturbance in portions of the Goose Molting Area and caribou protection areas to the north, northeast, and east of the lake. Stipulations and ROPs would limit winter activities, protect over-wintering habitats, and offer other protections to fish. Overall, effects should be minor. |

Table 2-3. Continued.

| No Action Alternative  | Alternative B  | Alternative C  | Final Preferred Alternative  |
|--|--|--|--|
| <b>EFFECTS ON FISH</b>   |  |  |  |
| <p><b>Cumulative Effects:</b> Non-oil and gas activities, including development, subsistence, and recreational fishing, have impacted fish and their habitat, but these effects have been minor and likely do not persist today. The energy produced by vibration equipment used to acquire seismic data has not been an issue because the vibrations are below the threshold known to affect fish in streams and lakes crossed during seismic investigations. Approximately 2,500 acres of direct impacts to uplands and wetlands from non-oil and gas activities persist today. Oil and gas activities have caused approximately 12,000 acres of direct impacts to uplands and wetlands that persist today; another 18,000 acres of indirect impacts may have also occurred, some of which persist today and affect water bodies. Although the amount of fish habitat that has been lost is not known, fish-bearing waters comprise about 5 percent of the Planning Area. During the early years of development, gravel mining for roads and pads often interrupted both ice sheet flow and stream flows, and hence fish movement. The permitting process and the regulatory environment for protecting fish have improved over time and are generally effective. Proper construction and placement of bridges and culverts have greatly reduced effects, but have not eliminated them; these remaining effects have accumulated. Little is known about the effects on fish from water withdrawals from lakes. Some fish would have been harmed or killed during water extraction, but these numbers would have been very small and would not accumulate. Localized changes to fish populations in the vicinity of a road connecting to the Dalton Highway would be possible. Synergistic impacts to fish from disturbance related to oil and gas production under any of the alternatives in this amendment are not anticipated. Beneficial effects related to material extraction at gravel sites would be possible in certain situations. Past reclamation of deep pits that have been mined has proved beneficial when new habitat for Arctic fish species has been established. If oil and gas activities occurred in areas with high fish populations, or populations of sensitive or important subsistence species, impacts to fish could be greater than impacts predicted based on the amount of area impacted. If oil prices average \$25 per bbl, development in the Planning Area would directly impact 300, 1,120, 1,380, and 920 acres for alternatives A through D, respectively, and indirectly impact 400 to 2,400 acres (1,600 acres under the final Preferred Alternative). If development occurred in the northern portion of the Planning Area, 5 percent or more of the impacted area could be fish habitat; although, excluding Teshekpuk Lake, many of the lakes in the ACP are too shallow to support fish. If global climate change persists, the effects to fish could be much greater than predicted; although, some species are expected to benefit from global climate change.</p> |  |  |  |
| <b>EFFECTS ON BIRDS</b>  |  |  |  |
| <p><b>General Effects:</b> Disturbance effects from non-oil and gas activities are likely to be minor for most local and regional bird populations. Elevated activity and air traffic near large summer camps could result in minor impacts on local populations. Effects to regional populations should be minor, except in the case of species that are uncommon, decreasing, or recently declined, where effects could be minor. Routine summer air traffic, especially over higher bird density areas, would likely result in minor impacts. Gravel mining, pads, airstrips, short pad-connecting roads, and pipelines, directly and indirectly impacting 370 to 1,215 acres of breeding habitat and displacing small numbers of nesting birds, would likely result in few population effects. Raptors nesting along major rivers would experience minor effects from</p>  | <p><b>General Effects:</b> Effects to birds would be greater in extent than under the No Action Alternative because an area of high bird use in the Teshekpuk Lake Special Area would be available for leasing. Gravel mining, pads, airstrips, short pad-connecting roads, and pipelines, although directly and indirectly impacting 610 to 4,875 (3,480) acres of breeding habitat and displacing small numbers of nesting birds, would likely result in some population effects. However, stipulations and ROPs would minimize effects to birds; overall, impacts would be minor.</p> | <p><b>General Effects:</b> Effects to birds would be greatest under this alternative because the amount of area of high bird use in the Teshekpuk Lake Special Area available for leasing would be greatest, and because the projected level of development is highest under this alternative. Gravel mining, pads, airstrips, short pad-connecting roads, and pipelines, although directly and indirectly impacting 665 to 5,985 (4,215) acres of breeding habitat and displacing small numbers of nesting birds, could cause minor population effects to some species, such as brant, that depend on the Planning Area for breeding habitat.</p> | <p><b>General Effects:</b> Effects to birds would be higher than under the No Action Alternative, but less than for the other two alternatives. Under this alternative, Teshekpuk Lake would be deferred from leasing, providing protection to birds that use this lake. In addition, protection of habitat associated with the Goose Molting Area (Lease Stipulation K-4) and restrictions on the amount of area that can be disturbed within seven lease tracts associated with the Goose Molting Area, and No Surface Occupancy restrictions associated with caribou habitat areas to the east and southeast of the lake, would provide protection on an additional 374,000 acres (although much of this area would be closed to leasing under Alternative B). Gravel mining, pads, airstrips, short pad-connecting roads, and pipelines, although directly and indirectly impacting 365 to 4,130</p> |



Table 2-3. Continued.

| No Action Alternative  | Alternative B | Alternative C | Final Preferred Alternative  |
|--|---------------|---------------|--|
| <b>EFFECTS ON BIRDS</b>  |               |               |  |
| disturbance associated with human activities. Effects from crude oil spills, when confined to terrestrial and freshwater aquatic habitats, would be minor for most species, but could be moderate for rare species or those with declining populations if birds or critical habitat were impacted. If a spill were to enter a river delta or nearshore marine habitats occupied by substantial numbers of birds, minor to moderate effects would be likely for stable/increasing and declining populations, respectively. Quantitative effects might be difficult to separate from natural variation in population numbers.  |               |               | (2,810) acres of breeding habitat and displacing small numbers of nesting birds, could result in minor population effects. |
| <p><b>Cumulative Effects:</b> Approximately 2,500 acres of direct impacts and about 5,000 acres of indirect impacts to bird habitat from non-oil and gas activities persist today. Oil and gas activities have directly impacted approximately 13,000 acres of bird habitat and indirectly impacted approximately 21,000 acres of habitat, and these impacts persist today. Since most of these impacts are associated with ongoing non-oil and gas residential and commercial developments well as oil and gas activities, these impacts to habitat are additive to future impacts and would be likely to persist for several decades or more, in the absence of a active reclamation program. The impacts of predators on bird populations may be slowly waning as industry reduces the amount of predator-attracting garbage in the fields. Other effects, including disturbance, are difficult to measure, but are likely accumulating as the number of developments and the amount of developed area increase. The typical amount of gravel pad and roadway needed to service a development have become smaller over time, reducing the amount of bird habitat lost due to development. However, new development often relies on aircraft support for transportation of personnel and equipment that can increase disturbance to feeding, nesting, and molting birds. Habitat loss and disturbance can add incrementally to the impacts of development on birds. Development in the Planning Area would directly and indirectly impact 790, 3,480, 4,210, and 2,810 acres of bird habitat for Alternatives A through D, respectively, if oil prices average \$25/bbl. Wetlands, which are important to waterfowl and shorebirds, would comprise approximately 95 percent of this habitat loss. Given that the area most likely to developed under the action alternatives is located north and northeast of Teshekpuk Lake, an area that supports hundreds of thousands of waterfowl and shorebirds, impacts to birds could be much greater than predicted based on amount of area disturbed. As shown on <a href="#">Maps 3-13, 3-14, 3-15, 3-16, 3-17, 3-18, and 3-19</a>, the area to the north, northeast, and east of Teshekpuk Lake has medium to high population densities of several species of waterfowl and shorebirds, including white-fronted geese, brant, and pintails. Depending on the types and locations of facilities, impacts to brant and other waterfowl could accumulate, especially where species are concentrated, and affect the long-term health of the local population. The effects to waterfowl, shorebirds, and other birds from oil and gas development would be less under the No Action Alternative and Alternative B because all (No Action Alternative) or most (Alternative B) of this area would be closed to leasing under these alternatives. The effects would be greatest under Alternative C since the entire area would be open to leasing. The effects from the final Preferred Alternative would be less than Alternative C, but greater than Alternative B, since some development could occur within this area. Rising temperatures associated with global climate change are likely to favor the expansion of the northern boreal forest into areas currently occupied by tundra. Global climate change may also result in an increase in shrubs at the expense of forbs and graminoid vegetation characteristic of arctic tundra. In addition, rising seal levels resulting from increasing temperatures may further reduce the amount of tundra habitat available to nesting birds by causing coastal erosion and by inundating low-lying areas. These changes may be beneficial to some species such as those associated with boreal forest or shrub habitats, but a reduction in the amount of tundra habitat available could negatively impact tundra-nesting shorebirds and waterfowl.</p> |               |               |  |

Table 2-3. Continued.

| No Action Alternative  | Alternative B   | Alternative C   | Final Preferred Alternative  |
|--|---|---|--|
| <b>EFFECTS ON TERRESTRIAL MAMMALS</b>  |   |   |  |
| <p><b>General Effects:</b> Non-oil and gas activities, seismic work, drilling of exploration wells, and spills would have minor effects on terrestrial mammals. Most effects would be localized and short term, and would not occur at the population level. Some TLH caribou would likely be disturbed and their movements delayed along an elevated pipeline to the Kuparuk oil field during periods of air traffic and construction. Near the oil fields, surface, air, and foot traffic is expected to displace some terrestrial mammals. If field development occurred in critical TLH insect-relief areas, movements of caribou from coastal insect-relief areas to foraging areas could be adversely affected. Extensive development could result in the loss of some insect-relief habitat for TLH caribou. Crude oil and fuel spills are expected to result in the loss of small numbers of terrestrial mammals.</p>  | <p><b>General Effects:</b> Effects would occur over more of the Planning Area than under the No Action Alternative, and a greater number of animals would potentially be disturbed. Impacts to terrestrial mammals in the vicinity of Teshekpuk Lake would be greater than under the No Action Alternative, particularly with respect to caribou calving and insect-relief habitat. Approximately 213,000 acres would be closed to leasing north/northeast of Teshekpuk Lake, an important area for TLH caribou, but an important migration corridor to the east of Teshekpuk Lake would not be given protection. Lease stipulations and ROPs would help minimize impacts to terrestrial mammals.</p> | <p><b>General Effects:</b> Effects would occur over more of the Planning Area than under the other alternatives, and a greater number of animals would potentially be disturbed. Impacts to terrestrial mammals in the vicinity of Teshekpuk Lake would be greater than under the other alternatives, particularly with respect to caribou calving and insect-relief habitat. Lease stipulations and ROPs would help minimize impacts to terrestrial mammals.</p> | <p><b>General Effects:</b> Effects would occur over more of the Planning Area than under the No Action Alternative, but effects to caribou would be similar to those for Alternative B, and less than those for Alternative C. Limits on the amount of disturbance that could occur in the seven lease tracts associated with the Goose Molting Area, and No Surface Occupancy restrictions in the Caribou Movement Corridor and Southern Caribou Calving Area, would provide protections to caribou and other mammals on 374,000 acres. Impacts to terrestrial mammals in the vicinity of Teshekpuk Lake would be greater than under the No Action Alternative and the Preferred Alternative, particularly with respect to caribou calving and insect-relief habitat. Lease stipulations and ROPs would help minimize impacts to terrestrial mammals.</p> |
| <p><b>Cumulative Effects:</b> Approximately 2,500 acres of habitat have been directly impacted by non-oil and gas development, and these impacts continue to persist. Oil and gas activities have caused an additional habitat loss of 12,000 acres, and have indirectly impacted approximately 21,000 acres of habitat, and these impacts persist today. Since most of the impacts to habitat are associated with ongoing non-oil and gas residential and commercial development, and oil and gas activities, these impacts to habitat are additive to future impacts and would be likely to persist for several decades or more, in the absence of an active reclamation program. Oil and gas development has altered the distribution of female caribou during the summer season and interfered with caribou movements between inland feeding areas and coastal insect-relief areas. Female caribou may also experience lower parturition rates when in close proximity to oil field development. It has also been suggested that declines in CAH caribou productivity in the early 1990s may have been the result of additive effects of oil field development and high insect activity, although populations of TLH, CAH, and WAH caribou have steadily increased since the mid-1970s. Thus, disturbance of caribou due to oil field development may adversely affect caribou, but these effects are not readily apparent based on population trends. Other mammal populations (e.g., fox and grizzly bear) have been little affected, or may even have benefited from development on the North Slope. Subsistence and recreational hunting pressures have likely increased from historic levels due to increases in human populations and better access to the North Slope. Still, based on subsistence harvest surveys, subsistence harvest of mammals was relatively stable during the 1980s and early 1990s. Based on population trends of game mammals on the North Slope, hunting does not appear to be adversely affecting mammal populations. Development in the Planning Area would directly and indirectly impact 790, 3,480, 4,210, and 2,810 acres of mammal habitat for Alternatives A through D, respectively, if oil prices average \$25/bbl. These habitat losses would account for 0.001 to 0.007 percent of the habitat projected to be lost due to development on the North Slope during the next 50 years. Given that the area most likely to be developed under the action alternatives is located north and northeast of Teshekpuk Lake, an area that provides critical habitat for TLH caribou and other mammals, impacts to caribou, other mammals, and their habitats could be much greater than predicted based on the amount of area disturbed. As shown on <a href="#">Maps 3-24, 3-25, and 3-26</a>, the areas to the north, northeast, and east of Teshekpuk Lake and along the coastline provide important caribou calving and insect-relief habitat. Because of the importance of these areas, Lease Stipulations K-9 and K-10 were developed for the final Preferred Alternative to provide special NSO protection to caribou habitat. Lease Stipulation K-11 would limit development in the Goose Molting Area to the north of the lake. Still, caribou and other wildlife would be exposed to oil and gas disturbance in their summer, and</p> |   |   |  |

Table 2-3. Continued.

| No Action Alternative  | Alternative B   | Alternative C  | Final Preferred Alternative   |
|--|---|--|---|
| <b>EFFECTS ON TERRESTRIAL MAMMALS</b>  |   |  |   |
| <p>potentially winter, range. Depending on the types and locations of facilities, impacts to caribou and other mammals could accumulate, especially where species are concentrated, and could affect the long-term health of the local population. Offshore development associated with leases in the Beaufort Sea could impact small areas along the coast as a result of staging and storage of materials, but this development is unlikely to impact large areas of habitat. Cumulative effects on caribou distribution and abundance are likely to be long term, lasting as long as the life of the oil fields. Any reduction in calving and summer habitat use by cows and calves as a result of future onshore leasing would represent a functional loss of habitat that accumulates and could result in long-term effects on the caribou herds' productivity and abundance. If global climate change over the next several decades were to result in widespread changes in vegetation and insect abundance, effects to terrestrial mammals could be exacerbated and extend beyond the life of the oil fields. If these cumulative effects were to result in reductions in caribou populations, there could also be a reduction in the abundance of predators such as wolves, bears, and wolverines.</p> |   |  |   |
| <b>EFFECTS ON MARINE MAMMALS</b>   |   |  |   |
| <p><b>General Effects:</b> Effects from non-oil and gas activities would be short term and localized. Seals and polar bears could be affected by offshore oil exploration and subsequent development on the coast of the Planning Area in Harrison Bay in a small area south of Atigaru Point. Seismic surveys near the coast could disturb denning polar bears, but relatively few would be affected. Noise associated with support aircraft could disturb marine mammals and temporarily displace them from preferred resting and feeding locations. Summer air traffic could disturb ringed, bearded, and spotted seals hauled out on ice or beaches. Polar bears could be attracted to oil field camps and killed in defense of life or property, but such occurrences would be rare. A small number of ringed seals, spotted seals, beluga whales, or polar bears could be adversely affected by oil spills reaching Fish Creek, Judy Creek, the Kogru River, the Colville River, or drainages that empty into the Colville River. Losses would be small and would not substantially impact marine mammal populations.</p>  | <p><b>General Effects:</b> The increased levels of seismic exploration would result in a greater likelihood of polar bear disturbance than under the No Action Alternative, primarily near the Colville River Delta and inner Harrison Bay. Because there would likely be more development under this alternative, there would be a greater potential for disturbance to marine mammals from aircraft, overland traffic, and barge traffic. Effects would be localized and short term, and would not substantially affect marine mammal populations. The potential effects of an oil spill would be similar to those under the No Action Alternative, although the likelihood of a spill would be greater. Stipulation K-6 would minimize the potential for oil development near the coast to impact ringed seals, spotted seals, beluga whales, and polar bears.</p> | <p><b>General Effects:</b> There would likely be greater disturbance to marine mammals, primarily near the Colville River Delta and inner Harrison Bay areas than under the other alternatives. Effects should be localized and short term, and would not cause significant impacts to marine mammal populations. Stipulation K-6 would minimize the potential for oil development near the coast to impact ringed seals, spotted seals, beluga whales, and polar bears.</p> | <p><b>General Effects:</b> There would likely be more disturbance to marine mammals under this alternative than under Alternative B, but less than would occur under the other two action alternatives. The amount of development proposed under this alternative would be less than for alternatives B and C. In addition, the amount of development that could occur within each of seven lease tracts north of Teshekpuk Lake, and adjacent to the coastline, would be limited to no more than 300 acres. Effects should be localized and short term, and would not cause major impacts to marine mammal populations. Stipulation K-6 would minimize the potential for oil development near the coast to impact ringed seals, spotted seals, beluga whales, and polar bears.</p> |
| <p><b>Cumulative Effects</b> Industrial activity in marine waters of the Beaufort Sea has been limited and sporadic and has likely not caused substantial cumulative effects on seals or polar bears. However, noise and other disturbances may have displaced whales from preferred habitats in the past; although, these effects are difficult to quantify and to determine if they accumulate. In addition to noise and disturbance from existing oil development, seals, walruses, polar bears, and beluga and gray whales could be affected by future offshore development in the Beaufort and Chukchi seas. In addition, marine mammals wintering in the northern Bering Sea could be affected by disturbance from commercial fishing activities. Subsistence hunting of marine mammals by Alaska Natives is not likely to affect marine mammals at the population level. Disturbance could result in temporary</p>  |   |  |   |

Table 2-3. Continued.

| No Action Alternative  | Alternative B  | Alternative C   | Final Preferred Alternative  |
|--|--|---|--|
| <b>EFFECTS ON MARINE MAMMALS</b>   |  |   |  |
| displacement from preferred feeding habitats, and some animals could be shot by fishermen. An oil spill could affect marine mammals in offshore or coastal areas, with the impacts to marine mammals depending on the location and amount of oil spilled and the time of year. The effects of future habitat alteration associated with gravel island construction, platforms, or other structures related to oil development would likely be minor. The presence of small amounts of hazardous materials, including hydrocarbons and insecticides, would likely have minor effects on marine mammals. The effects of global climate change on marine mammals are unclear. While a reduction in the extent of Arctic ice coverage would likely have a dramatic negative impact on ice-dependent seal and polar bear populations, an increase in the amount of sea ice edge resulting from global warming may be beneficial to whales. North Slope fisheries are small and likely have only a minor impact on marine mammal populations. Impacts to marine mammals from development in the Planning Area would generally be similar under the four proposed alternatives. The increased development scenarios of alternatives B and C and the final Preferred Alternative would contribute additional barge and aircraft traffic impacts and would require a greater number of coastal staging areas than the development scenario under the No Action Alternative. If additional staging areas along the Northeast National Petroleum Reserve – Alaska coast led to increased offshore exploration and development activities, the potential for cumulative impacts to marine mammals by noise or other activities would increase. |  |   |  |
| <b>EFFECTS ON ENDANGERED AND THREATENED SPECIES</b>  |  |   |  |
| <b>General Effects:</b> Activities would be unlikely to disturb bowhead whales, except vessel traffic under exceptional circumstances. Spectacled and Steller’s eiders could be impacted by activities occurring during the summer breeding season, which would primarily be associated with development and production. Vehicle, aircraft, pedestrian, and boat traffic; maintenance activities; heavy equipment use; and spill cleanup activities could all result in temporary displacement of eiders from preferred habitats, decreased nest attendance or nest abandonment; and increased energy expenditures. Depending on the nature and duration of behavioral changes caused by disturbance, effects could be considered a “take” under the ESA. Gravel mining and placement associated with development could result in permanent habitat loss on up to 505 acres. An additional 710 acres of habitat could be indirectly impacted by oil development. Eider mortality could result from collisions with vehicles and structures associated with oil and gas development. Effects from oil spills would be minor when confined to terrestrial and freshwater aquatic habitats, where eider mortality should be relatively low. Minor   | <b>General Effects:</b> Oil and gas activities would affect a larger portion of the Planning Area, and therefore more animals, than under the No Action Alternative. Bowhead whales would still be unlikely to be affected, except under exceptional circumstances. Gravel mining and placement associated with development could result (directly and indirectly) in permanent eider habitat loss on 615 to 4,875 (3,480) acres. Portions of high eider use in the Teshekpuk Lake Special Area would be available for leasing under this alternative, so the likelihood for disturbance to eiders and the number of eiders affected would be greater. Stipulations would decrease disturbance from most factors for threatened eiders and help prevent fuel and oil pollution and degradation of important bird habitats. | <b>General Effects:</b> Oil and gas activities would affect a larger portion of the Planning Area, and therefore more animals, than under the other alternatives. Bowhead whales would still be unlikely to be affected, except under exceptional circumstances. Gravel mining and placement associated with development could result (directly and indirectly) in permanent eider habitat loss on 665 to 5,985 (4,215) acres. In addition, a larger acreage in the areas of high eider use in the Teshekpuk Lake Special Area (particularly wetlands north of Teshekpuk Lake) would be available for leasing under this alternative, so the likelihood for disturbance to eiders and the number of eiders affected would be greatest under this alternative. Stipulations would decrease disturbance from most factors for threatened eiders and help prevent fuel and oil pollution and degradation of important bird habitats. | <b>General Effects:</b> Oil and gas activities would affect a similar portion of the Planning Area as under Alternative B, but 211,000 acres less area than under Alternative C. Bowhead whales would still be unlikely to be affected, except under exceptional circumstances. Gravel mining and placement associated with development could result (directly and indirectly) in permanent eider habitat loss on 365 to 4,130 (2,810) acres. Stipulations K-4 (Goose Molting Area) and K-11 (Lease Tracts Area) would limit or prohibit permanent surface facilities (excluding pipelines in some areas) in areas to the north and northeast of Teshekpuk Lake, high density areas for eiders (see <a href="#">Maps 3-33</a> and <a href="#">3-34</a> ). Other stipulations and ROPs would decrease disturbance from most factors for threatened eiders and help prevent fuel and oil pollution and degradation of important bird habitats. |

Table 2-3. Continued.

| No Action Alternative   | Alternative B | Alternative C | Final Preferred Alternative |
|---|---------------|---------------|-----------------------------|
| <b>EFFECTS ON ENDANGERED AND THREATENED SPECIES</b>   |               |               |                             |
| to moderate effects would be likely for eider populations if a spill were to enter a river delta or nearshore marine habitat when substantial numbers of brood-rearing, staging, or migrating individuals were present. Stipulations would decrease disturbance and help prevent fuel and oil pollution and degradation of important bird habitats.   |               |               |                             |
| <p><b>Cumulative Effects:</b> Hunting and disturbance are the two primary factors that have impacted bowhead whales in the past and have accumulated. Although bowhead whale populations have recovered from very depressed levels in the early 1900s, they are still about 80 percent below estimated levels at their peak. Noise and disturbance associated with offshore seismic and drilling activities, and boat and barge traffic have impacted whales, although their long-term effects, and likelihood of having cumulative impacts to whales, are unknown. A few whales could experience sublethal or lethal effects from entanglement in fishing gear, collisions with ships, or encounters with subsistence whalers. Most activities related to oil and gas development onshore on the North Slope and in the Planning Area would not impact bowhead whales. There would be an increase in barge traffic that would contribute to cumulative impacts to bowhead whales from underwater noise and the presence of boat traffic. Bowhead whales could display a cumulative response to activities that produce underwater noise by increasing their distance from such sources by temporarily diverting their route of travel or by temporarily changing their behavior. In general, these impacts would be minor and short term. Should development of the Planning Area stimulate greater interest in oil and gas activity offshore, these impacts could increase proportionately. Bowhead whales that come into contact with freshly-spilled oil could suffer temporary, non-lethal effects, and a few whales could suffer lethal effects. Bowhead whales could also be displaced by oil spill clean-up activities. Cumulative effects are likely to have only a minor impact on the bowhead whale population. Impacts to bowhead whales from development in the Planning Area would generally be similar to that discussed for marine mammals. The increased development scenarios of alternatives B and C and the final Preferred Alternative would contribute additional barge and aircraft traffic impacts and would require a greater number of coastal staging areas than the development scenario under the No Action Alternative. If additional staging areas along the Northeast National Petroleum Reserve – Alaska coast led to increased offshore exploration and development activities, the potential for cumulative impacts to bowhead whales by noise or other activities would increase. Should boat and barge traffic along the Beaufort Sea coast increase as a result of offshore leases and development in the National Petroleum Reserve – Alaska, deflection of the bowhead whale migration could occur. It is unlikely that such deflection would have high impacts on individual bowhead whales or the whale population, but the deflection of whales away from the coast could impact subsistence hunting of whales.</p> <p>Approximately 2,500 acres have been disturbed from non-oil and gas development on the North Slope. Although not all of this area would have been used by eiders, much of it has occurred along the coastline and near Barrow, areas where spectacled and Steller’s eiders are often seen (see <a href="#">Maps 3-33</a> and <a href="#">3-34</a>). Oil and gas activities have directly impacted approximately 12,000 acres of bird habitat, and indirectly impacted approximately 21,000 acres of habitat that persist today. Since most of these impacts are associated with ongoing non-oil and gas residential and commercial developments, as well as oil and gas activities, these impacts to habitat are additive to future impacts and would be likely to persist for several decades or more, in the absence of an active reclamation program. Eider populations are larger northeast of Teshekpuk Lake and west of the Planning Area, thus the amount of eider habitat impacted by development to date is probably minor, but could increase in the future. The impacts of predators on bird populations may be reduced compared to the early years of oil field development, as industry has reduced the amount of garbage that is available in fields to attract predators. Other effects, including disturbance, are difficult to measure, but are likely accumulating as the number of developments and the amount of developed area increase. The gravel footprints of current developments are reduced compared to the footprints of previous oil field development, resulting in less habitat loss in modern oil fields. However, new development often relies on aircraft support for transportation of personnel and equipment, which that can increase disturbance to feeding, nesting, and molting eiders. Habitat loss and disturbance can add incrementally to the impacts of development on eiders. The cumulative effects from typical activities associated with exploration and development of oil and gas prospects in the Planning Area, lands to the west, and adjacent marine areas, could include small declines in local nesting or loss of small numbers of spectacled eiders, and potentially Steller’s eiders, through effects on survival and productivity, predation pressure enhanced by human activities, and collisions with structures. Development in the Planning Area would directly and indirectly impact 790, 3,480, 4,210, and 2,810 acres of potential eider habitat for Alternatives A through D, respectively,</p> |               |               |                             |

Table 2-3. Continued.

| No Action Alternative   | Alternative B  | Alternative C   | Final Preferred Alternative   |
|---|--|---|---|
| <b>EFFECTS ON ENDANGERED AND THREATENED SPECIES</b>   |  |   |   |
| <p>if oil prices average \$25/bbl. Wetlands, which are important to waterfowl and shorebirds, would comprise approximately 95 percent of this habitat loss. Given that the area most likely to be developed under the action alternatives is located north and northeast of Teshekpuk Lake, an area that supports some of the highest nesting densities of eiders on the North Slope, impacts to birds could be much greater than predicted based on amount of area disturbed (Maps 3-33 and 3-34). Depending on the types and locations of facilities, impacts to spectacled and Steller's eiders could accumulate, especially where species are concentrated, and affect the long-term health of the local population. The effects to eiders from oil and gas development would be less under the No Action Alternative and Alternative B because all (No Action Alternative) or most (Alternative B) of this area would be closed to leasing under these alternatives. The effects would be greatest under Alternative C since the entire area would be open to leasing. The effects from the final Preferred Alternative would be less than Alternative C, but greater than Alternative B, since some development could occur within this area.</p>   |  |   |   |
| <b>EFFECTS ON CULTURAL RESOURCES</b>  |  |   |   |
| <p><b>General Effects:</b> Impacts from non-oil and gas activities would be minimal. There is a very low risk that cultural resources would be encountered and damaged during seismic surveys, ground-disturbing activities, excavation of materials, or oil spills associated with oil and gas development. Potential impacts would be minor, as surveys would be conducted prior to all ground-disturbing activities.</p>   | <p><b>General Effects:</b> The likelihood that cultural resources would be encountered during destructive activities would be somewhat greater than under the No Action Alternative because there would be more development and a greater portion of the Planning Area would be open to leasing. Overall, potential impacts to cultural resources would likely still be minor because surveys would be conducted prior to all ground-disturbing activities. In addition, stipulations that provide setbacks from lakes, streams, and rivers would help prevent impacts because there concentrations of cultural resources are common in these areas.</p> | <p><b>General Effects:</b> The likelihood that cultural resources would be encountered during destructive activities would be greater than under the other alternatives because there would be more development and a greater portion of the Planning Area would be open to leasing. Overall, it is likely that potential impacts to cultural resources would still be minor because surveys would be conducted prior to all ground-disturbing activities. In addition, stipulations that provide setbacks from lakes, streams, and rivers would help prevent impacts because concentrations of cultural resources are common in these areas.</p> | <p><b>General Effects:</b> The likelihood that cultural resources would be encountered during destructive activities would be somewhat greater than under the No Action Alternative because there would be more development and a greater portion of the Planning Area would be open to leasing. However, the potential for impacts to cultural resources would be less than for the other alternatives. Overall, it is likely that potential impacts to cultural resources would still be minor because surveys would be conducted prior to all ground-disturbing activities. In addition, stipulations that provide setbacks from lakes, streams, and rivers would help prevent impacts because concentrations of cultural resources are common in these areas.</p> |
| <p><b>Cumulative Effects:</b> Effects to cultural resources from road and pad construction, gravel mining, and disturbance associated with development and production activities have occurred in the past and persist today. Gravel roads, gravel pads, and gravel mines have caused surface disturbances that could have impacted cultural resources. Over 500 acres of peat roads were constructed, and gravel footprints have impacted over 9,200 acres. Gravel mines have impacted another 6,360 acres, with over 5,000 acres of gravel being mined in rivers, where cultural resources are often found. Federal regulations and management stipulations were developed to mitigate impacts to cultural resources. However, increased development and exploration activities while prompting the identification of the majority of cultural resources in National Petroleum Reserve – Alaska and the North Slope, have increased the cumulative effects to these resources. The greatest potential for cumulative effects would occur under Alternative C, as the entire Planning Area would be available for leasing, and the amount of development proposed under this alternative is greater than for the other alternatives. The potential for cumulative effects under Alternative B and the final Preferred Alternative would be similar. Although much of the northeastern portion of the Planning Area would be closed to leasing under Alternative B, the amount of development proposed under this alternative would be about 20 percent greater than for the final Preferred Alternative. Teshekpuk Lake would be deferred from leasing under the final Preferred Alternative, but the likelihood of a large number of cultural resources being found in the lake would be small. However, NSO restrictions on permanent facilities in caribou habitat protection areas and the Goose Molting Area would limit the amount of surface disturbance that could occur north and east of Teshekpuk Lake; these restrictions would reduce the likelihood of cumulative effects to cultural resources. Under the No Action Alternative, 600,000 acres associated with the Teshekpuk Lake Special Area would be closed to leasing. In addition, further lease sales and exploration and development in the South and Northwest portions of the National Petroleum Reserve – Alaska, and areas outside (e.g., Point Thomson), would increase the potential area of effects. Stipulations and ROPs developed for the 1998 Northeast IAP/EIS ROD and this amendment would reduce the likelihood of</p> |  |   |   |



Table 2-3. Continued.

| No Action Alternative   | Alternative B  | Alternative C  | Final Preferred Alternative  |
|---|--|--|--|
| <b>EFFECTS ON CULTURAL RESOURCES</b>  |  |  |  |
| oil and gas exploration and development activities impacting cultural resources in the Planning Area.   |  |  |  |
| <b>EFFECTS ON SUBSISTENCE-HARVEST PATTERNS</b>  |  |  |  |
| <p><b>General Effects:</b> Non-oil and gas activities would have limited effects on subsistence resources, though short-term, localized disturbances to subsistence species and harvest patterns could occur. Subsistence species, such as caribou, muskox, and moose, would avoid areas of oil and gas activity, resulting in long-term localized effects. Fish could also be killed, potentially affecting harvests in localized areas for one to several years. With the movement of subsistence species away from areas of development, they could become more difficult to locate and harvest by hunters. Nuiqsut hunters, in particular, would be affected by the movement of caribou, as development would proceed west from the Nuiqsut vicinity. Waterfowl might also avoid traditional harvest locations. Oil spills that entered water could contaminate, or cause concerns about contamination of, marine mammals and fish.</p>   | <p><b>General Effects:</b> Effects would be greater in magnitude, extent, and duration than those occurring under the No Action Alternative, as an additional 387,000 acres would be open to oil and gas development. Stipulations would help to minimize the effects on subsistence species and harvest patterns.</p> | <p><b>General Effects:</b> Effects would be greater in magnitude, extent, and duration than those occurring under the other alternatives. Additional areas available for leasing under this alternative, which would be closed under the other alternatives, are important caribou harvest areas and fishing areas for Barrow, Atqasuk, and Nuiqsut. Development in this area could exclude subsistence users from important traditional harvest areas. Stipulations would help to minimize the effects on subsistence species and harvest patterns.</p> | <p><b>General Effects:</b> Effects would be greater in magnitude, extent, and duration than those occurring under the No Action Alternative, similar to those effects occurring under Alternative B, and much less than those effects occurring under Alternative C. Limits on the amount of disturbance that could occur in the seven lease tracts associated with the Goose Molting Area, and No Surface Occupancy restrictions in the Caribou Movement Corridor and Southern Caribou Calving Area, would provide protections to TLH caribou on approximately 374,000 acres of important calving, migration, and insect-relief habitat for caribou (see <a href="#">Maps 2-4</a> and <a href="#">3-21</a>). Development that is allowed in this area, and in other areas outside of the protection zones, could exclude subsistence users from important traditional harvest areas. Stipulations would help to minimize the effects on subsistence species and harvest patterns.</p> |
| <p><b>Cumulative Effects:</b> Prior to sustained contact between the Iñupiat of the North Slope and Euroamericans, the Iñupiat were a highly mobile, geographically widespread, and technologically capable people who lived in dispersed, small communities based on family and social connections. They harvested local resources as needed and as available. Beginning with commercial whaling in the 1850s, and followed by establishment of the Naval Petroleum Reserve and subsequent exploration activity that marked the beginning of resource extraction activity in lands occupied by the Iñupiat of the North Slope, the Iñupiat have had adapt to the “external pressures impacting their environment and regulatory actions that restrict their subsistence pursuits.” Subsistence is currently, and has been since the mid-19<sup>th</sup> century, part of a rural economic system, called a “mixed, subsistence-market” economy, wherein families invest money into small-scale, efficient technologies to harvest wild foods. Over time, the Iñupiat experienced a growing reliance on an external market system to purchase introduced technological innovations to support subsistence activities (e.g., traps, boat motors, snowmachines). Avoidance of formerly utilized harvest areas due to industrial activity was made possible by motorized transportation. During this 150-year period, the Iñupiat have had to continually adapt to the constraints placed upon their subsistence activities and lifestyle by cultures other than their own. The effects of these constraints on the Iñupiat persist today and will accumulate with future effects on their subsistence resources and lifestyle. Development along the north side of Teshekpuk Lake, outside the area closed to leasing, could deflect or divert caribou hunted in and near the area by Nuiqsut, Barrow, and Atqasuk residents in the summer and winter. Numbers of animals available for harvest could be reduced through the slow destruction of species by habitat loss, predation, climate change, and disease. Diverting animals from their usual and accustomed locations, or building facilities in proximity to those locations, could compel resource harvesters to travel further to avoid development areas. Harvest of subsistence resources in areas further from the communities would require increased effort, risk, and cost on the part of subsistence users. Increasing the areas open for leasing and exploration would lead to development in previously closed areas, leading to concentrating subsistence harvest efforts in the undeveloped areas and increasing the potential for conflict over harvest areas within a community. Climate change and the associated effects of anticipated</p> |  |  |  |

Table 2-3. Continued.

| No Action Alternative   | Alternative B  | Alternative C   | Final Preferred Alternative  |
|---|--|---|--|
| <b>EFFECTS ON SUBSISTENCE-HARVEST PATTERNS</b>  |  |   |  |
| <p>warming of the climate regime in the Arctic could significantly affect subsistence harvests and uses if warming trends continues as predicted. Every community in the Arctic is potentially affected by the anticipated climactic shift and there is no plan in place for communities to adapt to or mitigate these potential effects. The reduction, regulation, and/or loss of subsistence resources would have severe effects on the subsistence way of life for residents of Nuiqsut, Atkasuk, Barrow, and Anaktuvuk Pass. If the loss of permafrost, and conditions beneficial to the maintenance of permafrost, arise as predicted, there could be synergistic cumulative effects on infrastructure, travel, landforms, sea ice, river navigability, habitat, availability of fresh water, and availability of terrestrial mammals, marine mammals, waterfowl and fish, all of which could necessitate relocating communities or their population, shifting the population to places with better subsistence hunting and causing a loss or dispersal of community. Allowing leasing and development of all or portions of the Teshekpuk Lake Special Area under the action alternatives would dramatically reduce the amount of undisturbed habitat to caribou, waterfowl, fish, and other subsistence species. These effects to subsistence species would be greatest under Alternative C. Effects to subsistence species would be similar under Alternative B and the final Preferred Alternative. Although much of the northeastern portion of the Planning Area would be closed to leasing under Alternative B, the amount of development proposed under this alternative would be about 20 percent greater than for the final Preferred Alternative. Teshekpuk Lake would be deferred from leasing under the final Preferred Alternative, protecting waterfowl and other subsistence species that use the lake. In addition, NSO restrictions on permanent facilities in caribou habitat protection areas and the Goose Molting Area would limit the amount of surface disturbance that could occur north and east of Teshekpuk Lake; these restrictions would reduce the likelihood of cumulative effects to subsistence resources. Under the No Action Alternative, 600,000 acres associated with Teshekpuk Lake Special Area would be closed to leasing.</p> |  |   |  |
| <b>EFFECTS ON SOCIOCULTURAL SYSTEMS</b>   |  |   |  |
| <p><b>General Effects:</b> Oil and gas development in the Planning Area would further the perception that local residents are being surrounded by development, and would increase the difficulty, expense, and risk of traveling to subsistence harvest areas. As a result, the continued use of and access to traditionally used lands could decrease, potentially threatening the subsistence way of life. As Nuiqsut is the community closest to the oil and gas development, effects would likely be greatest for Nuiqsut residents. Atkasuk, Barrow, and Anaktuvuk Pass could also be affected. Oil spills could disrupt subsistence harvests by contaminating resources, or causing the perception that resources were contaminated. Stipulations would provide protections for subsistence resources, cabins, camps, and river corridors, as well as a system of negotiating conflicts between permittees, leaseholders, and subsistence users, and would help to allow cultural values to coexist with development.</p>   | <p><b>General Effects:</b> Effects would be greater in magnitude and extent than those occurring under the No Action Alternative. Development in areas north of Teshekpuk Lake could cause societal stress in Barrow, Nuiqsut, and Atkasuk by discouraging families from using traditional sites and increasing concerns about encroachment and contamination of subsistence resources. This alternative adopts a new approach to mitigation measures, relying on performance-based stipulations and ROPs rather than prescriptive-based stipulations. Local residents are less familiar with this new approach and have concerns about whether it would be as effective as the previous set of stipulations. Some local residents and organizations perceive the changes to the stipulation package as reversing commitments previously made. This could affect the sense of trust between local communities and the federal agencies managing the National Petroleum Reserve – Alaska.</p> | <p><b>General Effects:</b> Effects would be greater in magnitude and extent than under the other alternatives, as the amount of oil exploration and development activity and area of disturbance could be up to 5 times higher under this alternative than the No Action Alternative, affecting more traditional use sites and increasing the likelihood of conflicts between industry and the subsistence way of life.</p> | <p><b>General Effects:</b> Effects would be greater in magnitude and extent than those occurring under the No Action Alternative, similar to the effects that would occur under Alternative B, and less than the effects that would occur under Alternative C. Development in areas north of Teshekpuk Lake could cause societal stress in Barrow, Nuiqsut, and Atkasuk by discouraging families from using traditional sites and increasing concerns about encroachment and contamination of subsistence resources. The potential for development north of Teshekpuk Lake would be somewhat greater under this alternative than Alternative B, but restrictions on the amount of surface disturbance allowed in each lease tract and No Surface Occupancy restrictions in important caribou habitats to the east and southeast of the lake should reduce impacts to caribou and other subsistence resources. The likelihood of development occurring in close proximity to Nuiqsut would be similar under all alternatives.</p> |



Table 2-3. Continued.

| No Action Alternative   | Alternative B  | Alternative C  | Final Preferred Alternative   |
|---|--|--|---|
| <b>EFFECTS ON SOCIOCULTURAL SYSTEMS</b>   |  |  |   |
| <p><b>Cumulative Effects:</b> Impacts to the sociocultural systems of the Iñupiat of the North Slope have occurred since the first direct interactions with non-Natives in the first quarter of the 19<sup>th</sup> century. Since that time, the Iñupiat have adapted to new technologies, new external pressures, and regulatory actions. By the mid-20<sup>th</sup> century, Iñupiat settlement patterns had changed significantly. The population became centralized into a few communities, when they previously had been spread in small family-based units across the North Slope. The cumulative effects of oil and gas development on sociocultural patterns over the last 50 years are hard to establish with quantitative precision given the lack of baseline data. Nonetheless, there is evidence that North Slope sociocultural systems have been subject to ongoing, additive, and synergistic cumulative impacts. Stresses on North Slope sociocultural systems include residents' inability to access traditional use areas, threats to resources/life ways and to spiritual connection with the land, having to deal with multiple environmental impact assessments and other development processes, and being ignored or discounted by agency representatives. Long-term stresses would result in greater impacts to sociocultural systems. The possibility of a major oil spill, and its effects on bowhead whales and other marine mammals, fish, and wildlife, is of great concern to residents, although no such spill has occurred recently on the North Slope. These stresses accumulate because they interact and are repeated with each new lease sale, EIS, development proposal, and facility expansion. These effects would be greatest under Alternative C, not only because it would result in a greater amount of surface disturbance (as many as 2,000 acres) than the other alternatives (1,570 acres for Alternative B, 1,100 acres for the final Preferred Alternative, and 500 acres for the No Action Alternative), but the entire Planning Area would be available for oil and gas leasing and development. However, the amount of wealth, including income from royalties, taxes, and jobs, generated by oil and gas activity and available to residents of the North Slope would be approximately two- to nine-fold greater under this alternative than the other alternatives. The effects on wealth and subsistence resources would be least under Alternative A, while the effects on wealth and subsistence resources under Alternative B and the final Preferred Alternative would be between the No Action Alternative and Alternative C.</p> |  |  |   |
| <b>EFFECTS ON ENVIRONMENTAL JUSTICE</b>   |  |  |   |
| <p><b>General Effects:</b> Impacts to subsistence species and harvest patterns (as discussed above) would also have disproportional impacts on the minority Iñupiat population, which is dependent on subsistence resources. As effects to subsistence species would likely be localized, short term, and minor, environmental justice effects would be minor as well. In the unlikely event that a major oil spill occurred in a key harvest area or near a community, environmental justice effects would be much greater.</p>  | <p><b>General Effects:</b> Effects would be greater in magnitude and extent than those occurring under the No Action Alternative. This alternative adopts a new approach to mitigation measures, relying on performance-based stipulations and ROPs rather than prescriptive-based stipulations. Local residents are less familiar with this new approach and have concerns about whether it would be as effective as the previous set of stipulations. Some local residents and organizations perceive the changes to the stipulation package as reversing commitments previously made. This could affect the sense of trust between local communities and the federal agencies managing the National Petroleum Reserve – Alaska.</p> | <p><b>General Effects:</b> Effects could be approximately 5 times greater than under the No Action Alternative, and 20% greater than under Alternative B, in magnitude and extent.</p> | <p><b>General Effects:</b> Effects would be greater in magnitude and extent than those occurring under the No Action Alternative, but less than those that would occur under alternatives B and C because less oil and gas development would likely occur and caribou and other subsistence species would be given additional protection in the Lease Tract/Goose Molting areas and Caribou Movement Corridor and Southern Caribou Calving Area. This alternative also adopts a new approach to mitigation measures, relying on performance-based stipulations and ROPs rather than prescriptive-based stipulations. As with alternatives B and C, some local residents and organizations perceive the changes to the stipulation package as reversing commitments previously made. This could affect the sense of trust between local communities and the federal agencies managing the National Petroleum Reserve – Alaska.</p> |

Table 2-3. Continued.

| No Action Alternative  | Alternative B   | Alternative C  | Final Preferred Alternative  |
|--|---|--|--|
| <b>EFFECTS ON ENVIRONMENTAL JUSTICE</b>  |   |  |  |
| <p><b>Cumulative Effects:</b> Euro American presence, commercial whaling, and non-oil and gas development and oil and gas exploration and development have had cumulative impacts to Iñupiat culture and to fish and wildlife used for subsistence. Euro American presence has impacted the Iñupiat through disease and other ills. Commercial whaling nearly decimated whale stocks in the Chukchi and Beaufort seas; bowhead whale populations, though recovering, remain nearly 80 percent below their levels in the 1800s. Non-oil and gas development associated with military, residential, and commercial development have directly impacted several thousand acres of fish and wildlife habitat and has also indirectly affected habitat and animal behavior; these impacts have accumulated and persist today. Oil and gas exploration and development conducted by the federal government and industry have directly impacted the habitat use and behavior of subsistence species, and these impacts persist today. These effects have disrupted subsistence livelihoods, and may, in part, account for some of the social problems seen in the villages today. Under the cumulative case, currently planned development in the Planning Area and winter exploration throughout the entire area would continue. Seismic exploration would occur in winter and would include the drilling of exploratory and delineation wells in areas not excluded by buffers. Exploration and development could originate from Indigo, Point Lonely, and the Umiat vicinity, and could encompass important subsistence harvest areas for moose, fish, caribou, and furbearers, affecting subsistence users in Nuiqsut and to a lesser extent Atkasuk, Barrow, and Anaktuvuk Pass. If permanent development is pursued in areas newly opened to exploration and leasing under alternatives B, C, and the final Preferred Alternative, Iñupiat users could no longer utilize an area from 5 miles to 25 miles around those facilities for subsistence uses. The areas that would be potentially off-limits could represent a majority of the portion of the subsistence range that is presently undeveloped, and includes areas of great traditional and historic significance and key habitat areas for several crucial subsistence species. Allowing leasing and development of all or portions of the Teshekpuk Lake Special Area under the action alternatives would dramatically reduce the amount of undisturbed habitat to caribou, waterfowl, fish, and other subsistence species. These effects to subsistence species would be greatest under Alternative C. Effects to subsistence species would be similar under Alternative B and the final Preferred Alternative. Although much of the northeastern portion of the Planning Area would be closed to leasing under Alternative B, the amount of development proposed under this alternative would be about 20 percent greater than for the final Preferred Alternative. Teshekpuk Lake would be deferred from leasing under the final Preferred Alternative, protecting waterfowl and other subsistence species that use the lake. In addition, NSO restrictions on permanent facilities in caribou habitat protection areas and the Goose Molting Area would limit the amount of surface disturbance that could occur north and east of Teshekpuk Lake; these restrictions would reduce the likelihood of cumulative effects to subsistence resources.</p> |   |  |  |
| <b>EFFECTS ON COASTAL ZONE MANAGEMENT</b>  |   |  |  |
| <p><b>General Effects:</b> Conflicts could occur with specific statewide standards and NSB Coastal Management Program policies related to potential user conflicts between development activities and access to subsistence resources. These conflicts would relate to effects resulting from periodic disturbance and oil spills; however, no resource would become unavailable, undesirable for use, or experience substantial overall population reductions. The stipulations in place would reduce conflicts, making this alternative consistent with Alaska Coastal Management Program standards. For all other resources, there are no inherent conflicts between exploration and development activities and the statewide standards and enforceable policies of the NSB Coastal Management Program. With mitigating measures and</p>  | <p><b>General Effects:</b> Impacts to subsistence resources would be greater than under the No Action Alternative, as additional caribou, waterfowl, and fishing areas would be open to leasing and the expected level of development would be greater.</p> | <p><b>General Effects:</b> Impacts to subsistence resources would be greater than under the other alternatives, as additional caribou, waterfowl, and fishing areas would be open to leasing and the expected level of development would be greater.</p> | <p><b>General Effects:</b> Impacts to subsistence resources would be less than under alternatives B and C, as less oil and gas development would likely occur under this alternative, and caribou, waterfowl, and other subsistence species would be given additional protection in the Lease Tract/Goose Molting areas, Caribou Movement Corridor, and Southern Caribou Calving Area.</p> |

Table 2-3. Continued.

| No Action Alternative   | Alternative B   | Alternative C  | Final Preferred Alternative   |
|---|---|--|---|
| <b>EFFECTS ON COASTAL ZONE MANAGEMENT</b>   |   |  |   |
| regulatory oversight, it should be possible to comply with all of the standards and policies relevant to oil and gas activities that would be likely to have effects on the coastal resources or uses of the coastal zone. Applicable policies would be more precisely addressed when specific proposals were brought forward by lessees.   |   |  |   |
| <p><b>Cumulative Effects:</b> As most non-oil and gas development, and oil and gas development on the North Slope has occurred near the coastline, conflicts with the NSB and State of Alaska coastal zone management policies have occurred in the past. Specific issues include limits on access to coastal areas by Alaska Natives, disturbance to and deflection of caribou moving to insect-relief areas along the coast, loss of habitat, and loss of historical, cultural, and archaeological resources resulting from exploration and development along the coastline. Through consultation, conflicts between coastal zone management policies and proposed development that could occur in coastal areas have been reduced since implementation of coastal management policies. Most of the coastal area, from Atigaru Point to the boundary with the Northwest National Petroleum Reserve – Alaska, would be closed to leasing under the No Action Alternative. Lease Stipulation K-6, Coastal Areas, requires that permanent oil and gas facilities, including gravel pads, roads, airstrips, and pipelines established to support exploration and development activities shall be located at least ¾ mile inland from the coastline to the extent practicable. Where, as a result of technological limitations, economics, logistics, or other factors, a facility must be located within ¾ mile inland of the coastline, the practicality of locating the facility at previously occupied sites such as Camp Lonely, various Husky/USGS drill sites, and Distant Early Warning (DEW)-Line sites, shall be considered. Use of existing sites within ¾ mile of the coastline shall also be acceptable where it is demonstrated that use of such sites will reduce impacts to shorelines or otherwise be environmentally preferable. All lessees/permittees involved in activities in the immediate area must coordinate use of these new or existing sites with all other prospective users. Before conducting open water activities, the lessee shall consult with the Alaska Eskimo Whaling Commission, the Nuiqsut Whaling Association, and the NSB to minimize impacts to the fall and spring subsistence whaling activities of the communities of the North Slope. Adherence to this stipulation should ensure that coastal resources are adequately protected. All federal activities and federally-permitted activities must be reviewed for consistency with coastal management programs. Therefore, onshore activities within the Planning Area and some offshore activities identified under the alternatives should be assessed against the Alaska CMP, including the NSB CMP.</p> |   |  |   |
| <b>EFFECTS ON RECREATIONAL RESOURCES</b>  |   |  |   |
| <p><b>General Effects:</b> Non-oil and gas activities would cause temporary impacts to recreation values on 2,000 to 3,000 acres. Oil and gas exploration activities would cause short-term impacts on 16,000 to 24,000 acres. The greening of vegetation from ice pads, roads, airstrips, and compacted snow would occur on up to 950 acres. Seismic operations would result in many hundreds of miles of green trails. Short-term impacts would not accumulate. There would be a loss of solitude, naturalness, or primitive and unconfined recreation opportunities over an area of 110,400 acres (3% of the Planning Area)</p>  | <p><b>General Effects:</b> The area subject to recreation effects would be approximately 2 times the area affected under the No Action Alternative. Non-oil and gas activities would cause temporary impacts to recreation values on 2,000 to 3,000 acres. Oil and gas exploration activities would cause short-term impacts on 8,000 to 40,000 (24,000) acres. The greening of vegetation from ice pads, roads, airstrips, and compacted snow would occur on 250 to 2,500 (1,875) acres. Seismic operations would result in many hundreds of miles of green trails. There would be a loss of solitude, naturalness, or primitive and</p> | <p><b>General Effects:</b> The area subject to recreation effects would be approximately 2.4 times the area affected under the No Action Alternative, 1.1 times the area affected under Alternative B, and 1.3 times the area affected under the final Preferred Alternative. Non-oil and gas activities would cause temporary impacts to recreation values on 2,000 to 3,000 acres. Oil and gas exploration activities would cause short-term impacts on 8,000 to 48,000 (32,000) acres. The greening of vegetation from ice pads, roads, airstrips, and compacted snow would occur on 300 to 3,050 (2,250) acres. Seismic operations</p> | <p><b>General Effects:</b> The area subject to recreation effects would be approximately 2 times the area affected under the No Action Alternative, and about 16% and 24% less than area than would be affected under alternatives B and C, respectively. Non-oil and gas activities would cause temporary impacts to recreation values on 2,000 to 3,000 acres. Oil and gas exploration activities would cause short-term impacts on 8,000 to 32,000 (16,000) acres. The greening of vegetation from ice pads, roads, airstrips, and compacted snow would occur on 250 to 2,075 (1,500) acres. Seismic operations would result in many</p> |

Table 2-3. Continued.

| No Action Alternative  | Alternative B  | Alternative C  | Final Preferred Alternative   |
|--|--|--|---|
| <b>EFFECTS ON RECREATIONAL RESOURCES</b>   |  |  |   |
| for the life of production fields and pipelines. Long-term impacts would accumulate over time.   | unconfined recreation opportunities over an area of 244,800 acres (5% of the Planning Area) for the life of production fields and pipelines.   | would result in many hundreds of miles of green trails. There would be a loss of solitude, naturalness, or primitive and unconfined recreation opportunities over an area of 268,800 acres (6% of the Planning Area) for the life of production fields and pipelines.  | hundreds of miles of green trails. There would be a loss of solitude, naturalness, or primitive and unconfined recreation opportunities over an area of 203,200 acres (4% of the Planning Area) for the life of production fields and pipelines.  |
| Opportunities for primitive recreation have and will continue to be reduced by oil and gas activities on the North Slope. Facilities at Deadhorse support recreational opportunities along the Dalton Highway and at Prudhoe Bay. There would technically be no cumulative impacts to Wilderness or Wild and Scenic Rivers because there are currently no such areas designated in the Planning Area. However, the area eligible for future designation would be reduced to the degree that major disturbance occurred. Projected cumulative activities could have local impacts on the free-flowing, unpolluted waters and could affect the outstandingly remarkable values of portions of the eligible Colville River. In such a case, the amount of area potentially suitable for designation would be reduced. Cumulative effects would be similar under all four alternatives.  |  |  |   |
| <b>EFFECTS ON VISUAL RESOURCES</b>   |  |  |   |
| <b>General Effects:</b> Impacts on visual resources from activities other than oil and gas would be minimal and short term. During exploration, seismic surveys could result in over 7,500 miles of visible green trails. It is estimated that the long-term disturbance associated with the new wells would be 100 to 380 acres. Ice pads, airstrips, and roads would cause greening and ring effects on up to 1,900 acres. During development, long-term visual effects would occur from production pads, roads, gravel pits, pipelines, and CPFs on 120 to 380 acres, and from pipelines on up to 660 acres.  | <b>General Effects:</b> Effects on visual resources would occur over a greater acreage of land than under the No Action Alternative. During exploration, seismic surveys could result in over 7,500 miles of visible green trails. It is estimated that the long-term disturbance associated with the new wells would be 100 to 990 (750) acres. Ice pads, airstrips, and roads would cause greening and ring effects on up to 500 to 4,950 (3,750) acres. During development, long-term visual effects would occur from production pads, roads, gravel pits, pipelines, CPFs, and staging bases on 240 to 2,100 (1,450) acres, and from pipelines on up to 1,320 acres. | <b>General Effects:</b> Effects on visual resources would occur over a greater acreage of land than under the other alternatives. During exploration, seismic surveys could result in over 7,500 miles of visible green trails. It is estimated that the long-term disturbance associated with the new wells would be 120 to 1,220 (910) acres. Ice pads, airstrips, and roads would cause greening and ring effects on up to 600 to 6,100 (4,550) acres. During development, long-term visual effects would occur from production pads roads, gravel pits, pipelines, CPFs, and staging bases on 390 to 2,650 (1,820) acres, and from pipelines on up to 1,980 acres. | <b>General Effects:</b> Effects on visual resources would occur over a greater acreage of land than under the No Action Alternative, but over less acres than under alternatives B and C. During exploration, seismic surveys could result in over 7,500 miles of visible green trails. It is estimated that the long-term disturbance associated with the new wells would be 100 to 830 (600) acres. Ice pads, airstrips, and roads would cause greening and ring effects on up to 500 to 3,000 (4,150) acres. During development, long-term visual effects would occur from production pads, roads, gravel pits, pipelines, CPFs, and staging bases on 130 to 1,300 (920) acres, and from pipelines on up to 1,140 acres. |
| There would be a small increase in the short-term impacts to visual resources from non-oil and gas activities. Short-term impacts, such as green trails, and ongoing activities would not accumulate. Impacts from long-term or permanent facilities such as roads, pipelines, and gravel pads and pits would accumulate and would result in the long-term loss of scenic quality. Long-term impacts from production sites, staging areas, and pumping stations with a possible life span of over 30 years would affect visual resources in the North Slope. It is expected, however, that these impacts would be greatest within the Foreground-Middleground Zone of the viewer. Pipelines could be elevated above ground level and would be visible from ½ mile or more away. Except during construction and repair of pipelines, there would be no associated on-the-ground activity. Therefore, long-term impacts to visual resources from pipelines would be expected to be minimal if located beyond the Foreground-Middleground Zone of the viewer. |  |  |   |

Table 2-3. Continued.

| No Action Alternative   | Alternative B   | Alternative C   | Final Preferred Alternative   |
|---|---|---|---|
| EFFECTS ON THE ECONOMY  |   |   |   |
| <p><b>General Effects:</b> Oil and gas exploration and development would benefit the economy by creating increased revenues and employment. On average, approximately \$2.8 to \$4.8 million would be generated annually in property taxes. There would be an annual royalty of \$7 to \$54 million for the federal government, and \$7 to \$54 million for the State of Alaska and the NSB. The average annual state severance tax would be \$13 to \$90 million. The number of jobs created by exploration, development, and production would peak at 1,300 to 1,600 during development, declining to 500 to 825 jobs during production. The number of resident jobs generated would be 42 to 44 during the peak, and 17 to 27 jobs during production. Disruptions to the harvest of subsistence resources could affect the economic well being of NSB residents, primarily through the direct loss of subsistence resources.</p> | <p><b>General Effects:</b> The revenues and employment generated by oil and gas exploration and development would be greater than under the No Action Alternative. On average, approximately \$5 to \$32 million would be generated annually in property taxes, a 6-fold increase as compared to the No Action Alternative. There would be an annual royalty of \$15 to \$107 million for the federal government, and \$15 to \$107 million for the State of Alaska and the NSB. The average annual state severance tax would be \$22 to \$180 million, twice the amount that would occur under the No Action Alternative. The number of jobs created by exploration, development, and production would peak at 2,374 to 7,775 during development, declining to 810 to 3,005 jobs during production; this would be 2 to 4 times the number generated under the No Action Alternative. The number of resident jobs generated would be 156 to 510 during the peak (a 12-fold gain over the No Action Alternative), and 17 to 64 jobs during production. The likelihood for disruptions to the harvest of subsistence resources and associated economic impacts would be greater than under the No Action Alternative.</p> | <p><b>General Effects:</b> The revenues and employment generated by oil and gas exploration and development would be greater than under the No Action Alternative and similar to or slightly greater than under Alternative B and the final Preferred Alternative. On average, approximately \$6 to \$37 million would be generated annually in property taxes, a 2 to 8-fold increase as compared to the No Action Alternative. There would be an annual royalty of \$15 to \$122 million for the federal government, and \$15 to \$122 million for the State of Alaska and the NSB. The average annual state severance tax would be \$22 to \$180 million, twice the amount that would occur under the No Action Alternative. The number of jobs created by exploration, development, and production would peak at 2,374 to 9,090 during development, declining to 810 to 3,654 jobs during production; this would be over five times the number generated under the No Action Alternative. The number of resident jobs generated would be similar to the number generated under Alternative B: 156 to 638 during the peak (a 14-fold gain over the No Action Alternative), and 17 to 79 jobs during production. The likelihood for disruptions to the harvest of subsistence resources and associated economic impacts would be greater than under the other alternatives.</p> | <p><b>General Effects:</b> The revenues and employment generated by oil and gas exploration and development would be greater than under the No Action Alternative and similar to or lower than under alternatives B and C. On average, approximately \$5 to \$32 million would be generated annually in property taxes, a 2 to 6-fold increase as compared to the No Action Alternative. There would be an annual royalty of \$13 to \$107 million for the federal government, and \$13 to \$107 million for the State of Alaska and the NSB. The average annual state severance tax would be \$22 to \$178 million, about twice the amount that would occur under the No Action Alternative. The number of jobs created by exploration, development, and production would peak at 1,787 to 5,798 during development, declining to 405 to 2,386 jobs during production; this would be about three times the number generated under the No Action Alternative. The number of resident jobs generated would be up to 9 times the number generated under the Preferred Alternative: 78 to 407 during the peak, and 9 to 52 jobs during production. The likelihood for disruptions to the harvest of subsistence resources and associated economic impacts would be greater than under the No Action Alternative.</p> |

Table 2-3. Continued.

| No Action Alternative  | Alternative B | Alternative C | Final Preferred Alternative |
|--|---------------|---------------|-----------------------------|
| <b>EFFECTS ON THE ECONOMY</b>  |               |               |                             |
| <p><b>Cumulative:</b> Subsistence was, and continues to be, the basis of the economy and culture for the Iñupiat people. The assessment of past events begins with the advent of commercial whaling in the 1850s, which is considered the first major event that affected the North Slope economy, and ends with current (2004) oil and gas lease sales that could affect the future economy of the region. Aside from the petroleum industry, the NSB is the dominant economic organization on the North Slope. The NSB taxes the oil and gas facilities and uses the revenues to provide education and a wide array of other public services within its boundaries. Property taxes on oil and gas infrastructure provide over 95 percent of the total revenues received by the NSB. Population growth in the NSB grew sharply until the mid-1980s, and then has slowed significantly over the past several years and has declined for four straight years since 1999. Real (inflation adjusted) per capita personal income in the NSB has declined from peak years in the 1970s and early 1980s, with over \$40,000 in income, to under \$30,000 in income in the latter part of the 1990s. Increased income has led to the adoption of more efficient, reliable, useful, and less-demanding subsistence technology. However, full time employment has reduced the amount of time available for subsistence activities. The declining trend in revenues, jobs, and per capita incomes are expected to continue into the future (in the absence of a major economic event such as the natural gas pipeline project that would create a natural gas industry). It seems reasonable to envision a future trend with more North Slope residents participating in oil and gas activities as Borough-related employment opportunities become very limited. This could mean a tradeoff in subsistence activities as jobs in the oil and gas industry would not be able to provide the same level of flexibility as the Borough and construction jobs. Events in the reasonably foreseeable future, such as exploration and development in other areas of the National Petroleum Reserve – Alaska could mitigate these declining trends, but are not expected to offset these declines. The development associated with the Northeast National Petroleum Reserve – Alaska could also have implications at the national level. The Department of Energy estimated that the contribution of North Slope crude to domestically produced oil supplies would decline from 18 percent in 2004 to 14 percent in 2020; again, this decline could be mitigated, but not offset, by opening up the Northeast National Petroleum Reserve – Alaska to oil and gas exploration. Any increase in domestic oil production is expected to reduce U.S. dependency on foreign oil supplies, and, in turn, improve national energy security and the overall balance of trade.</p> |               |               |                             |